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BY TELEFAX AND OVERNIGHT MAIL

Mr. Clifford Hawkes
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Denver Service Center
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Dear Mr. Hawkes:

On behalf of the nationwide membership of The Fund for Animals and the Biodiversity Legal Foundation (The Fund and BLF), I submit the following comments on the Winter Use Plan Draft Environmental Impact Statement (Draft EIS or DEIS) for Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway (hereafter "the Parks" or YNP, GTNP, JDRMP).

The Fund and BLF are frustrated and disturbed by the blatant inadequacy of the Draft EIS. In entering into the settlement agreement in The Fund for Animals v. Babbitt, CV 97-1126(ES), plaintiffs believed that approximately two years should have been a sufficient amount of time to produce a comprehensive and objective EIS evaluating the significant impacts of winter use in the Parks. Considering the deficiencies in the Draft EIS, either plaintiffs underestimated the ability of the National Park Service (NPS) to produce a quality analysis, or, more likely, the NPS simply failed to uphold its agreement and legal responsibility to produce a comprehensive EIS. The Fund and BLF recognize that the unfortunate and illegal involvement of cooperators complicated this effort, but there remains no legitimate excuse for the preparation of a Draft EIS which fails to comprehensively evaluate the direct, indirect, and cumulative impacts of winter use activities on the environment.

Furthermore, The Fund and BLF assert that the Draft EIS process was flawed because of an inexplicable presumption by the NPS that motorized winter access to the Parks, particularly snowmobiling and snowcoach use, must continue. This presumption or position, which is not supported by NPS statutes, regulations, or policies, permeates the entire Draft EIS. While this

bias in favor of motorized oversnow vehicle access to the Parks may be consistent with the historical trend of the NPS to favor public access over the preservation of nature (See e.g., Sellars 1997), it is not consistent with federal law, it should no longer be the mantra for the NPS, and it should not influence the future management of YNP, GTNP, JDRMP, or any other unit in the national park system. Indeed, there could be no greater stage for the NPS to reassert its commitment to its original preservation mandate established by Congress then to ban snowmobiling, snowcoach use, and trail grooming in the Parks. A failure to do so is not only illegal, but will ensure that the wildlife, ecology, air and water quality, and the natural quiet of the Parks continue to be impacted and degraded and will prolong the management of our national parks as national playgrounds.

Contrary to the NPS's assertions, there is no dual or conflicting mandate in management of national parks. The principle mission of the NPS, as dictated by Congress over 80 years ago, is to preserve nature as it exists. While the NPS cannot preclude all human use of a park, it has the indisputable authority to control what type of use occurs, when that use occurs, and where that use is authorized as long as the use does not conflict with the NPS's preservation mandate. Snowmobiling, snowcoach use, and trail grooming to facilitate access by these vehicles causes significant adverse environmental impacts. Such impacts indisputably violate the NPS's primary mission and, therefore, must be prohibited. Limiting snowmobile access or permitting only snowcoach access as the NPS and others suggest in various alternatives is not acceptable since such use will continue to cause adverse impacts inconsistent with the NPS primary mission.

The failure or refusal of the NPS to understand or properly interpret its legal mandate has unalterably and permanently damaged the Draft EIS. Whether intentional or not, the failure of the NPS to satisfy or even acknowledge the relevance of its legal mandates to winter use activities, particularly snowmobiling, snowcoach use, and trail grooming, in the Draft EIS renders the document incomplete and meaningless. This failure is particularly egregious considering that NEPA requires, particularly under the circumstances here, that a no-snowmobiling/no-snowcoach use/no-trail grooming alternative would be seriously considered in the Draft EIS and that the NPS would provide an objective and comprehensive evaluation of its legal mandates in regards to winter use in the document.[1] Instead, the NPS considered but rejected an alternative which would have banned snowmobiling, snowcoach operation, and trail grooming claiming that "oversnow motorized use is considered to be within the range of recreation opportunities to be provided," DEIS at 38, and, except for including verbatim references to its legal mandates, failed to comprehensively evaluate those standards in regards to winter use activities. While The Fund and BLF recognize that the NPS was likely under tremendous local, state, and federal political pressure to ensure the continuation of motorized oversnow vehicle access to the Parks, this is no excuse to entirely disregard its own legal mandates. Had the NPS properly and objectively integrated its legal standards into the Draft EIS, it would have had no choice but to offer a preferred alternative proposing to prohibit motorized oversnow vehicle access into the Parks since

[1]This expectation was repeated in the 7/18/98 scoping comments submitted by Schubert & Associates on behalf of The Fund for Animals.

this is the only alternative which is consistent with NPS mandates.[2]

Unlike a normal NEPA case where the evaluation is prepared before the action is initiated, this case is unique in that the action, particularly snowmobiling, was permitted for twenty years before the NPS attempted, albeit inadequately, to comply with NEPA and has continued for ten additional years without any substantive or sufficient NEPA analysis. In approving the settlement, plaintiffs reluctantly agreed to permit winter use activities to continue in the Parks even though, by law, these activities should have been ceased during the analysis. Because of the NPS failure to prepare a comprehensive EIS prior to permitting motorized oversnow vehicle access into the Parks, the NPS now has to seriously consider a no-snowmobiling/no-snowcoach use/no-route grooming alternative since that would represent the status quo if the NPS had originally complied with NEPA. Failing to do so simply compounds and exacerbates illegal decisions made thirty years ago. Because of this unique situation, if there is any delay in completing the final EIS and Record of Decision then, at a minimum, the NPS must terminate snowmobiling, snowcoach use, and trail grooming, at least until a final EIS and ROD are completed. It is not in the interests of The Fund, BLF, or even the NPS, to continue to standby and allow winter use activities, particularly snowmobiling and trail grooming, to exert adverse impacts on the wildlife, air and water quality, ecology, and natural quiet of the Parks while the NPS continues to struggle to properly evaluate the environmental impacts of winter use activities in a legally sufficient NEPA document.

In addition to ignoring its legal mandates in the preparation of the Draft EIS, the document itself does not meet the legal standards required under the National Environmental

[2]A prohibition on snowmobile use in national parks is not unprecedented. In the late 1970s/early 1980s, for example, officials in Glacier National Park decided to prohibit snowmobiles. At about the same time, limited snowmobile use was permitted and then subsequently withdrawn from California's Yosemite, Sequoia-Kings Canyon, and Lassen Volcanic National Parks. In this case, however, The Fund and BLF believe that a prohibition on snowmobiling, snowcoach use, and trail grooming is the only option available to the NPS which will ensure sufficient protection for the natural features of the Parks as required by law. Prohibiting snowmobiling and trail grooming would also be entirely consistent with the approach federal agencies have taken in recent years to handle similar problems in the national parks. For example, the Departments of Interior and Transportation recently announced plans to curtail the degradation caused by too many cars in certain national parks, such as by announcing that, in order to "preserve and protect" the Grand Canyon "for future generations," the federal government will "greatly restrict automobile use," as well as diesel buses, diesel and steam locomotives and outboard engines on river rafts. 61 Fed. Reg. 69,308 (Dec. 31, 1996). Similarly, the government has recently taken action to curtail the air traffic over Grand Canyon, recognizing that permitting these flights conflicts with the Park Service's duty to "preserve the natural environment." See 62 Fed. Reg. 1795, 1796 (Jan. 13, 1997). All the reasons that support these regulatory initiatives -- air and water pollution, noise abatement, wildlife protection, conflicts with other users, public safety -- fully apply to snowmobile use and trail grooming.

Policy Act (NEPA). In particular: the focus on economic impacts is both unnecessary and misplaced; the analysis of environmental consequences is incomplete and incorrect; the NPS has failed to review a full range of reasonable alternatives; and the evaluation of winter use, particularly snowmobile impacts on threatened and endangered species is insufficient. These and other deficiencies cannot be ignored by the NPS in its haste to finalize this EIS and produce a Record of Decision.

There can be no dispute that snowmobiling and trail grooming cause significant adverse impacts to the natural features and qualities of the Parks. The Draft EIS, though deficient in its analysis, provides or references sufficient evidence to substantiate these impacts. Moreover, the scientific literature provides further support for the inescapable conclusion that snowmobiles and groomed routes adversely impact wildlife, air and water quality, natural quiet, and ecology.[3] The fact that snowmobiles are used in winter, when wildlife are already experiencing stress as a result of the climatic conditions, serves only to exacerbate these impacts. The question then is not whether snowmobiling and trail grooming cause adverse environmental impacts but whether these impacts can be permitted in a national park.

In the remainder of this comment letter, The Fund and BLF will provide indisputable proof that such adverse impacts cannot, by law, be tolerated in the Parks and that, therefore, the NPS is left with no choice but to consider and ultimately prohibit those winter use activities, namely snowmobiling and trail grooming, which cause such impacts. While snowcoach use in and of itself may result in less severe environmental impacts, trail grooming required to facilitate snowcoach access to the Parks will continue to result in adverse and unnatural impacts to the parks' wildlife and, thus, snowcoaches cannot be tolerated in the Parks. In addition, the NEPA deficiencies in the Draft EIS will be identified and evaluated. Finally, The Fund and BLF will describe an independent alternative, the Natural Regulation Alternative, which provides a comprehensive winter use management plan for the parks which is consistent with NPS legal mandates and which offers, if deemed desirable and necessary, a more environmentally friendly

[3]Much of this literature is summarized in documents in the possession of the NPS including a February 1997 document entitled "Adverse Effects of Trail Grooming and Snowmobile Use on Winter Use Management in the Greater Yellowstone Area with a Special Emphasis on Yellowstone National Park" (Attachment 1), a January 1999 Petition to Prohibit Snowmobiling and Road Grooming in National Parks submitted by the Bluewater Network (Attachment 2), an October 1999 report from the Greater Yellowstone Winter Wildlife Working Group entitled "Effects of Winter Recreation on Wildlife of the Greater Yellowstone Area: A Literature Review and Assessment," and a September 1999 report from the Montana Chapter of The Wildlife Society entitled "Effect of Recreation on Rocky Mountain Wildlife: A Review for Montana" (Attachment 3). As indicated, three of these reports are submitted as attachments to these comments are hereby incorporated in their entirety by reference. While portions of Attachments 1 and 2 are used, practically verbatim, in different sections of this comment letter, The Fund and BLF expect the NPS to consider the entire content of these attachments in its analysis of this comment letter.

alternative to permit public access to the Parks in the winter.

Despite the track record of the NPS in regard to the management of snowmobiles, snowcoaches, and trail grooming in YNP, GTNP, JDRMP, and other parks, it is imperative that the NPS substantially alter its course now in order to protect and preserve the integrity and features of the Parks for future generations. National parks are intended, by law and by concept, to be different from other federal land areas like national forests, national wildlife refuges, or lands administered by the Bureau of Land Management. While resource extraction and exploitation are permitted and even promoted on many federal lands, national parks are intended to represent a vignette of primitive America where natural processes are allowed to function and flourish with minimal interference from humans.

While human use of national parks is permitted and, based on visitor statistics, clearly a popular activity, such use is secondary to the mission of preserving nature as it exists and must not come at the expense of the very reasons (i.e., wildlife, geothermal features, historical significance, cultural importance, uniqueness) why these areas were designated as national parks. Unfortunately, in its desire to placate political and business interests, the NPS has ignored its legal mandates and turned the Parks into a cacophony of motorized noise, where wildlife are unnaturally and adversely effected by motorized oversnow vehicle access and where breathing the air can be hazardous to one's health. The Fund and BLF recognize that a decision to prohibit snowmobiling, snowcoach operation, and trail grooming in the Parks will be controversial and precedent-setting. Despite the opposition to such a ban by those more interested in profiting from than protecting the parks, reversing management mistakes begun thirty years ago and instituting a management policy which will protect and preserve the diverse and wonderful features of the parks for future generations is both appropriate and required.

DISCUSSION:

GENERAL COMMENTS ON DRAFT EIS:

As identified above, a fundamental flaw in the Draft EIS and the process used to prepare the EIS is a failure or reluctance by the NPS to recognize, acknowledge, or to properly interpret its existing legal mandates in regard to snowmobiling and route grooming in the Parks. These mandates include the enabling legislation establishing each of the Parks, the NPS Organic Act, regulations implementing the Organic Act, NPS management policies and guidelines, and Executive Orders. Collectively these documents, excluding the park-specific enabling statutes, dictate the management of all national parks. Because the NPS has failed to properly evaluate these mandates in relation to snowmobiling and trail grooming, a summary of the relevant laws, regulations, policies, and other directives is provided below along with an explanation of the applicability of these standards to motorized oversnow vehicle use of the Parks.

Statutes:

YNP was created in 1872 as a "public park or pleasuring-ground for the benefit and enjoyment of the people," 16 U.S.C. §21. While those who support the continuation of motorized oversnow vehicle access to YNP rely on this statement to justify their position, the YNP enabling legislation contains additional guidance relevant to the use of the park. Specifically, Section 2 species that the "public park shall be under the exclusive control of the Secretary of the Interior" who shall publish regulations to "provide for the preservation, from injury or spoilation, of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural condition." Id. at §22 (emphasis added).

GTNP was originally established in 1929 and expanded in 1950 "for public benefit and enjoyment," to be administered in "accordance with the general statutes governing national parks." 16 U.S.C. §406d-1. In 1972, JDRMP was established for the purpose of "commemorating the many significant contributions to the cause of conservation in the United States, which have been made by John D. Rockefeller, Jr., and to provide both a symbolic and desirable physical connection between the world's first national park, Yellowstone, and the Grand Teton National Park." PL 92-404. The JDRMP, like the GTNP, is administered according to the NPS Organic Act which, as indicated below, provides clear direction for the management of public use of the Parks. It should be noted, however, that legislation establishing YNP, GTNP, or JDRMP did not explicitly or implicitly mandate that snowmobiling be permitted in the parks, nor did they suggest that the public must be afforded access to the Parks, by any means, during the winter season.

Though YNP was established in 1872, the NPS was not officially created until 1916 when the NPS Organic Act was promulgated. This Act provides the blueprint for the management of national parks. Specifically, the Act directs the NPS to "promote and regulate the use of the Federal areas known as national parks .... by such means and measures as conform to the fundamental purpose of said parks ... which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." 16 U.S.C. §1 (emphasis added). In designating hundreds of national park units since 1916, Congress has repeatedly reaffirmed its intention that, while these areas should be available for appropriate public use, they must be protected from despoliation in order to preserve "nature as it exists." See, H. Rep. No. 700, 64th Cong., 1st Sess 3 (1916)(emphasis added). Thus, as the Secretary of Interior stated in 1925 in a directive to the Director of the Mount McKinley National Park, "the duty imposed upon the National Park Service in the Organic Act creating it to faithfully preserve the parks and monuments for posterity in essentially their natural state is paramount to every other activity." See, National Riffle Ass'n v. Potter, 628 F. Supp. 903, 910 (D.D.C. 1986).[4]

[4]See also, May 13, 1918 letter from Secretary of the Interior Franklin Lane to Stephen T. Mather, Director of the National Park Service ("Every activity of the Service is subordinate to the duties imposed upon it to faithfully preserve the parks for posterity in essentially their natural state") (Dilsaver 1994).

Thus, while the statute requires the NPS to promote the use of national parks, it specifies that such use must be regulated and must not result in the impairment of the scenery, natural and historic objects, or the wildlife of the parks to the detriment of future generations. Far from authorizing all potential forms of public use, the statute explicitly declares that the NPS must provide for public use "in such manner and by such means" as will leave the parks unimpaired for the enjoyment of future generations. Consequently, if a use, like snowmobiling, results in impairment of the parks then the NPS has the authority and duty to consider and ultimately prohibit such use under the statute.[5]

The term "unimpaired" is not defined in either the statute or regulations. It is, however, defined and interpreted in NPS Management Policies to apply to both physical resources, such as wildlife and geologic features, as well as intangible values, such as scenic vistas and solitude. Policies at 1:3. Whether an action causes an impairment is a management determination. In making this determination, the manager should consider the spatial and temporal extent of the impacts, the resources being impacted, the ability of the resources to adjust to those impacts, the relation of the impacted resources to other park resources, and the cumulative as well as the individual effects (Policies at 1:3). NPS policy specifies that potential impairments must be treated in the same manner as known impairments. Policies at 1:4. Thus, if an action is likely to result in an impairment, the action cannot be implemented until it can be determined that the action will not result in an impairment. The environmental impact of snowmobiles and trail grooming, as conceded in the Draft EIS and as substantiated in the scientific literature (See Attachments 1, 2, and 3) violate the impairment standard and, therefore, cannot be permitted in national parks.

More recently, in 1970 Congress recognized that the park system has "grown to include superlative natural, historic, and recreation areas [which] are united through their inter-related purposes and resources into one national park system as cumulative expressions of a single national heritage [with] superb environmental quality." 16 U.S.C. §1a-1. Given the importance of these areas, in 1982, Congress reaffirmed that they must continue to be "preserved and managed for the benefit and inspiration of all the people of the United States." 16 U.S.C. §1c. Thus, Congress has instructed the NPS that "the authorization of activities (in national parks) shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established ..." 16 U.S.C. §1a-1. The NPS has interpreted these instruction to mean that "Congress conceive[s] of the park system as an integrated whole, wherein hunting, trapping, and any other activities in derogation of park values could be allowed only if authorized by a park area's enabling legislation or other applicable federal law." Michigan United Conservation Clubs v. Lujan, 949 F.2d 202, 205 (6th Cir. 1991) (emphasis added).

Based on the statutory evidence, there can be no legitimate dispute that the Park Service has a statutory mandate to adopt rules which "best achieve the Organic Act's mandate," including rules to prohibit snowmobiling and trail grooming if these activities are adversely affecting park resources. National Wildlife Fed. v. National Park Service, 669 F. Supp. 384, 391 (D. Wyo. 1987) (citing cases). In fact, a long line of case law has made it clear that the Park Service must regulate public use of the parks in order to promote preservation objectives. See, e.g., Michigan United Conservation Clubs v. Lujan, 949 F.2d 202 (6th Cir. 1991); Mausolf v. Babbitt, 125 F.3d 661 (8th Cir. 1997); Organized Fisherman of Florida v. Hodel, 775 F.2d 1544 (11th Cir. 1985); National Rifle Ass'n ("NRA") v. Potter, 628 F. Supp. 903 (D.D.C. 1986).

As Congress has explained, "[t]he Secretary has an absolute duty, which is not to be compromised, to fulfill the mandate of the [Organic] Act to take whatever actions and seek whatever relief as will safeguard the units of the National Park System." Senate Rep. No. 528, 95th Cong. 1st Sess. 21 (1977) (emphasis added). Thus, for example, in Potter, the NPS concluded that its long-standing authorization of hunting was inconsistent with the Service's preservation mandate, and prohibited hunting in the parks unless Congress required it. 628 F. Supp at 906. The National Rifle Association ("NRA") challenged this regulatory shift, arguing that each park should be permitted to determine whether to permit hunting. Id. at 907. The NPS in turn argued that its philosophy "has always been exclusively protectionist," and that the amendments to the Organic Act were a "pointed[ ] reminde[r]" to the NPS to pursue that mission. Id. (emphasis added). The court agreed, finding that the Park Service's emphasis on preservation was entirely appropriate and consistent with Congressional intent. Id. at 912; see also Michigan United Conservation Clubs, 949 F.2d at 207 ("Notwithstanding that the goals of user enjoyment and natural preservation may sometimes conflict, the NPS may rationally conclude, in light of the Organic Act and its amendments, that its primary management function . . . is preservation unless Congress has declared otherwise.")

Regulations:

The preservation mandate is also reflected in the regulations promulgated to implement the NPS Organic Act. The original regulations were originally published in 1974 and

[5]The interpretation of the impairment standard has not been consistent throughout the years (See e.g., Sellars 1997). As a result, the management of YNP and perhaps other national parks between 1916 and the late 1960s included management actions which clearly could not meet the unimpairment standard. In 1963, the publication of the Leopold Report, provided the impetus for the NPS to reexamine and reassert its original preservation mandate. Among the many recommendations in this report was a simple yet far reaching proposal that "the biotic associations within each park be maintained, or where necessary recreated, as nearly as possible in the conditions that prevailed when the area was first visited by the white man" (emphasis added) A national park should, as specified in the Leopold Report, "represent a vignette of primitive America" (emphasis added). In YNP, the Leopold Report resulted in the termination of lethal elk and bison control in the park and established natural factors as the fundamental force in controlling wildlife populations. Unfortunately, the renewed interest in protecting and preserving nature did not influence the NPS decision to permit oversnow vehicle access into the Parks which was done primarily to placate political and local business interests (Yochim 1998).

subsequently amended in 1978 and 1983. In 1974, when the first national standards were promulgated, YNP and perhaps other Parks were permitting motorized oversnow vehicle access without any overarching regulation controlling when or how such use would occur.

To achieve its preservation mandate, NPS regulations prohibit the destruction, injury, or disturbance of living wildlife from its natural state. 36 C.F.R. §2.1(a)(1). More specifically, the "frightening or intentional disturbing of wildlife nesting, breeding or other activities" are prohibited. Id. at §2.2(a)(2).

Snowmobile use in the national parks is prohibited, "except on designated routes and water surfaces that are used by motor vehicles or motorboats during other seasons."[6] 36 C.F.R. §2.18(c). Such routes and water surfaces available for snowmobile use must be identified by special regulations. Id. Even if used on designated routes or water surfaces, snowmobile use is prohibited unless it "is consistent with the park's natural, cultural, scenic and aesthetic values, safety considerations, park management objectives, and will not disturb wildlife or damage park resources." Id. The regulations also establish noise emission and other criteria governing snowmobile use within units of the national park system.

YNP, GTNP, and JDRMP also have park-specific regulations governing snowmobile operation. YNP regulations, which were established several years after snowmobiles were permitted access to the park, limit snowmobiles to designated routes which are defined as "that portion of the roadway located between the road shoulders designated by snow poles or poles, ropes, and signs erected by the superintendent to regulate snowmobile activity" (emphasis added). The routes designated for snowmobile use are located on the majority of the existing road surfaces utilized by automobiles outside of the winter season. The special regulations for GTNP and JDRMP also identify those routes and, in the case of GTNP, the area (formerly) open to snowmobile use but do not, unlike the YNP regulations, define the standards for delineating a

[6]A special exemption to this requirement had been issued to GTNP to permit the use of snowmobiles in the potholes area. This use, however, has been unofficially terminated thereby eliminating the need for the exemption. The Continental Divide Snowmobile Trail, however, which occupies the road shoulder within GTNP and JDRMP is technically an off-road trail which should require a similar exemption. Whether such an exemption exists or, if so, whether such an exemption is legal, is unknown. Furthermore, though not disclosed in the Draft EIS, the NPS has never finalized a proposed rule to officially designated the CDST as a snowmobile route in GTNP and JDRMP. Instead, the NPS has relied on illegal annual decision to authorize use of the CDST on an experimental basis. For these reasons the CDST is currently not a legal snowmobile route in GTNP or JDRMP and, therefore, must be closed until the NPS finalizes a rule officially designated the CDST as open to snowmobile use. The NPS must provide a discussion of the history and status of the CDST in a supplemental or Final EIS.

designated route.[7]

Both the general and park-specific regulations, though promulgated to permit snowmobile use, are, based on their plain language, clearly intended to substantially limit such use to those routes, areas, and circumstances when snowmobile use will not adversely impact park features and resources. Indeed, these regulations establish very rigid and specific standards to govern snowmobile use.

First, snowmobile use, even if on a designated route, is prohibited if it conflicts with the park's natural, cultural, scenic and aesthetic values, if it is unsafe, if it violates park management objectives, or if it disturbs park wildlife or damages park resources. If snowmobile use violates any one of these standards, the use must be stopped or modified so that it does not result in such impacts. Snowmobile use in the Parks, as documented in the Draft EIS, documents referenced in the Draft EIS, and the scientific literature unquestionably exceeds these basic standards and, thus, the elimination of snowmobile use must be considered and ultimately, as required by law, this use must be prohibited.[8]

Second, there is no authority in the general or park-specific regulations to authorize trail or road grooming as a means of delineating the boundaries of a snowmobile trail. While the GTNP and JDRMP are silent on this question, thus providing no guidance on how snowmobile routes can be delineated, the YNP regulations explicitly limit the methods available for delineating snowmobile routes to poles, ropes, and signs. Despite this clear limitation, YNP since the late 1960s/early 1970s has groomed snowmobile routes to facilitate snowmobile access. While grooming may simplify snowmobile operation, reduce off-road use, and increase public safety, the practice of grooming results in substantial environmental impacts as discussed in greater detail below, and snowmobile route grooming is not legal.[9] The Draft EIS fails to disclose or discuss

[7]The GTNP and JDRMP regulations include snowplanes in the definition of snowmobiles. Neither the general or park-specific regulation explicitly permit snowcoach use of the Parks. Thus, either that use is occurring illegally or it is authorized under the general regulation governing the use of motor vehicles on park roads.

[8]Since snowmobile use in the Parks is, except for a few routes in GTNP, inextricably linked to trail grooming and because trail grooming exerts adverse and unnatural impacts on park wildlife and ecology, as long as trail grooming occurs the number of snowmobiles using the Parks is irrelevant. Consequently, any claim that substantially reducing the number of snowmobiles permitted access to the Parks is sufficient to remedy existing impacts, unless such a reduction is commensurate with a termination of trail grooming, is wrong.

[9]If the NPS intended for grooming to be an acceptable method of delineating a snowmobile route it would have explicitly permitted this practice either in its general or park-specific regulations. At present, grooming in YNP is identified only in the annual compendium issued by the park superintendent pursuant to 36 C.F.R. §1.7(b). In such compendiums, the

why snowmobile routes are groomed in the Parks, the authority for grooming such routes, and the environmental impact of this activity. Grooming has become so ingrained in the winter use management strategy that the NPS apparently does not recognize that it is not a permissible means of delineating snowmobile routes and that it, in conjunction with or independent of snowmobile use, causes significant environmental impacts.

Policies:

The emphasis on the preservation of nature within the units of the national park system does not end with NPS regulations, but permeates all levels of NPS standards, guidelines, and directives. NPS Management Policies (Policies), for example, provide additional compelling evidence that the preservation of nature is the primary directive of the NPS and that snowmobiling and trail grooming have no place in the national parks. NPS policies originate in law and adherence to policy is mandatory unless waived or modified by an appropriate authority. Policies at ix.

The natural resource policies of the NPS are "aimed at providing the American people with the opportunity to enjoy and benefit from natural environments evolving through natural processes minimally influenced by human actions." Policies at 4:1 (emphasis added). This overarching mandate applies to both natural and development zones, although the latter category includes facilities and other structures to facilitate intensive visitor use which may alter the natural aspect of the land. In natural zones, which represent the bulk of the Parks, "natural resources will be managed with a concern for fundamental ecological processes as well as for individual species and features." Policies at 4:1 (emphasis added). Interference with natural processes in natural zones is not permitted, except under limited circumstances. Policies at 4:2. The NPS is mandated to monitor naturally evolving plant and animal populations, and the human influences on them, to detect any significant unnatural changes. Policies at 4:2.

Since park wildlife, geologic wonders, vegetation, air, and water are not limited to the narrow development zone surrounding roads and structures, any unnatural impacts on these features whether originating from the development or natural zones are not permitted by NPS policy. While the NPS is monitoring, albeit minimally, some of the unnatural effects of motorized oversnow recreation (i.e., snowmobiling, snowcoach operation, trail grooming), it has completely failed to remedy these impacts as required by its policies.

Native animal management must minimize human impacts on natural population dynamics.

superintendent is authorized only to "compile in writing all the designations, closures, permit requirements and other restrictions imposed under discretionary authority." Id. Authorizing snowmobile route grooming, an activity which causes such substantial environmental impacts, cannot possibly be within the discretionary authority of a superintendent and, therefore, is not permissible under this regulation.

Policies at 4:5.[10] Animal populations must be protected against harvest, removal, destruction, harassment, or harm through human action. Policies at 4:6. The control of native animal populations must rely on natural processes to the greatest extent possible.[11] Policies at 4:6. The control of animal populations, including unnatural concentrations of animals,[12] or individuals within parks is permitted, but only under extremely limited circumstances and only if the human activities which may be causing conflicts or unnatural concentrations cannot be controlled. Policies at 4:6. Yet again, snowmobiling and trail grooming indisputably cause impacts to native animal populations, and population dynamics which are inconsistent with these policies. The NPS is aware of these impacts, as it conceded to many in the Draft EIS, but has failed to take the requisite action to remedy these effects by prohibiting those human activities causing the impact.[13]

[10]See also, NPS Natural Resource Management Guideline - NPS-77 ("The fundamental objectives of NPS natural resource management...are to manage the natural resources of the National Park System to maintain, restore, and perpetuate their inherent integrity and, when consistent with the foregoing, to provide opportunities for visitors to benefit from and enjoy natural environments which are evolving through natural processes minimally influenced by human action.") (emphasis added). Management must strive to "perpetuate natural ecosystems through maintaining or restoring natural processes to the extent practically feasible." NPS-77 at 2:23. In managing native animal populations, managers "must give primary consideration to the welfare of native animals, but must also provide for public enjoyment" (emphasis added). Natural conditions are defined in the NPS-77 as those conditions which would have existed today in the absence of the effects of European man.

[11]More specifically, bison management in YNP is intended to maintain "a truly wild, free-ranging population subject only to the influences of natural regulatory processes" (1983 Management Plan). This objective is recognized as being unique in the United States, as nearly all other populations of bison, many of which are domesticated, are controlled by hunting or slaughter, and are fenced. The 1995 Resources Management Plan, which represents the natural resource management planning priorities in YNP, reemphasized the role of "natural regulation" in controlling bison population size. Unlike the 1983 Plan which only hinted of the implications of bison use of groomed snowmobile trails, the 1995 Plan explicitly admits that, "whereas in the past, snow depths in the park interior likely restricted bison movements into many areas, the winter grooming of snow roads for oversnow travel has facilitated bison movement into previously unoccupied areas in and outside the park" (emphasis added).

[12]An unnatural concentration of animals is defined as "populations of animals that are greater than those that would be sustained if it were not for human-induced changes in or out of a park. The concentration may be caused by an artificial barrier, by the removal of a significant predator, by the loss of a seasonal habitat, or by a human-induced behavior avoidance of another area on the part of an animal." NPS-77 at 2:20.

[13]NPS Natural Resource Management Guidelines authorize restrictions to be imposed against certain user groups, including snowmobile users, if a negative impact on native wildlife has

NPS policies also mandate the protection of air and water quality. The NPS must seek to restore, maintain, or enhance the quality of all surface and ground waters within the parks consistent with the Clean Water Act (33 U.S.C. 1251 et seq.) and other applicable federal, state, and local laws and regulations. Policies at 4:15. To do this, the NPS must regulate and control activities with high potential for water pollution, minimize the risk of water contamination by managing toxic substances like petroleum products, and control the intensive of use in certain areas and at certain times based on water quality monitoring studies. As disclosed in the Draft EIS, referenced studies, attachments 1, 2, and 3, and below, the emissions generated by snowmobiles pose a substantial impact to water quality and the ecology of aquatic systems.

The NPS is responsible for the protection of air quality under both the 1916 Organic Act, 16 U.S.C. §1 et seq., and the Clean Air Act, 42 U.S.C. 7401 et seq. The CAA requires superintendents to take actions consistent with their affirmative responsibilities to protect air quality related values in class I areas.[14] The CAA also establishes a national goal of preventing any future and remedying any existing man-made visibility impairment in class I areas. Policies at 4:18. NPS Policies specify that the NPS "will seek to perpetuate the best possible air quality in parks because of its critical importance to visitor enjoyment, human health, scenic vistas, and the preservation of natural systems and cultural resources." Policies at 4:17. The NPS is required to be aggressive in safeguarding air quality related values (i.e., vegetation, visibility, water quality, wildlife, historic and prehistoric structures and objects) from adverse impacts of air pollution, Policies at 4:17, and, when in doubt as to the impacts of existing or potential air pollution on park resources, the NPS must "err on the side of protecting air quality and related values for future generations." Policies at 4:17. To achieve air quality objectives, NPS management must include the inventorying of air quality related values, the monitoring and documenting of the condition of air quality and related values, and the evaluation of pollution impacts and causes. Policies at 4:18.[15]

Another form of pollution, noise pollution, is also of significant management concern to the NPS. Its management policies specify that the NPS "will strive to preserve the natural quiet and the natural sounds associated with the physical and biological resources of the parks (for example, the sounds of the wind in the trees or of waves breaking on the shore, the howl of the wolf, or the call of the loon)." Policies at 4:18. Activities which cause excessive or unnecessary

been identified from that specific source. NPS-77 at 2:31.

[14]Class I areas include all NPS units designated as national parks with more than 6,000 acres and all national wilderness areas with more than 5,000 acres that were in existence on August 7, 1977, and any other area redesignated as class 1 by the governing state or Native American authority. Policies at 4:18.

[15]In addition, NPS Natural Resource Management Guidelines specify that the NPS must monitor ambient air quality, visibility standards, and biological effects of air pollutants. NPS-77 at 185-188.

unnatural sounds in and adjacent to parks, must be monitored and action must be taken to prevent or minimize unnatural sounds which adversely affect park resources or values or visitors' enjoyment of them. Policies at 4:18. Despite the regulations in place to control snowmobile noise emissions -- regulations which may or may not be effectively enforced -- snowmobiles create substantial amounts of noise which is not only potentially damaging to the snowmobile operator, but which also may adversely impact wildlife and non-motorized park users. Depending on a number of factors, including topography, vegetation structure, wind direction, a non-motorized user who wants to truly experience natural quiet may need to move several miles from the snowmobile routes before the roar of snowmobile engines is no longer discernible. Requiring such efforts to experience natural quiet in a national park is not consistent with the overarching management mandates.

Public use of national parks is encouraged by the NPS in order to meet its statutory mandate of providing for public enjoyment of the parks. As indicated previously, the NPS statutory mandate does not require that all types of public use be permitted. Indeed, NPS policies specify that a recreational activity will not be permitted in a park if it is: 1) inconsistent with the park's enabling legislation or proclamation, or in derogation of the values or purposes for which the park was established; 2) causes unacceptable impacts on visitor enjoyment due to interference or conflict with other visitor use activities; 3) involves the consumptive use of park resources; 4) results in unacceptable impacts on park resources or natural processes; and 5) causes unacceptable levels of danger to the welfare and safety of the public, including participants. Policies at 8:3. More specifically, snowmobile use in national parks is limited to designated routes and frozen water surfaces "only in locations where there will be no significant adverse impacts on the park's natural, cultural, or scenic resources and values and in consideration of other visitor uses."

Clearly, as revealed in the Draft EIS, the scientific literature (See Attachments 1, 2, and 3), snowmobiling and trail grooming to facilitate snowmobile use are not recreational activities which meet the standards specified in NPS Policies. Not only do these uses result in substantial and unacceptable impacts on park resources and natural processes, but they also are inconsistent with NPS statutes and regulations and cause unacceptable impact on non-motorized visitor enjoyment.

Finally, NPS policies recognize that national parks are not islands unto themselves but that they are integral parts of larger regional environments. As a result, the NPS must "work cooperatively with others to anticipate, avoid, and resolve potential conflicts, to protect park resources, and to address mutual interest in the quality of life for community residents, considering economic development as well as resource and environmental protection." Policies at 2:9.

While some may claim that this policy requires the NPS to continue to permit motorized oversnow vehicle access to the Parks to protect the economic viability of the gateway communities, nothing could be further from the truth. While the NPS must be sensitive to the

influences and impacts of park management on adjacent landowners, it has no duty to enhance beneficial effects or mitigate adverse effects unless such actions are consistent with its policies and management objectives. Policies at 2:10. In this case, since snowmobiling and trail grooming are antithetical to the preservation mandate contained in NPS statutes, regulations, and policies, it has no duty or responsibility to continue to permit these activities based on development or economic concerns of adjacent landowners. In short, even if a prohibition on snowmobiling, snowcoach operation, and trail grooming resulted in the economic collapse of a business or an entire gateway community -- which it would not -- the NPS is not responsible and has no obligation to continue to permit an otherwise illegal activity which has and will continue to destroy park features and values in order to avert such an impact. Indeed, the duty of the NPS is primarily and fundamentally to protect the Parks, not to protect the interests, economic or otherwise, of those who reside adjacent to the Parks.[16]

Executive Orders:

A final piece of important guidance was provided in 1972, when the President Richard Nixon, recognizing the widespread and increasing use of ORVs on federal lands signed Executive Order (EO) 11644 (37 FR 2877). Executive Order (EO) 11644, issued in 1972, was intended to provide a "unified Federal policy" for the use of off-road recreational vehicles (ORV's), including snowmobiles, on public lands. Executive Order 11644, 37 Fed. Reg. 2877 (1972) reprinted in 42 U.S.C. § 4321. Its purpose was to "establish policies and provide for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands ... and to minimize conflicts among the various uses of those lands." Id. at § 1. As defined in the EO, an ORV means "any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain..." Id. at § 2(3).

[16]Many other NPS documents, including documents specific to YNP, GTNP, and JDRMP (i.e., Resource Management Plans, Master Plans, Statements for Management) provide additional information documenting and emphasizing the preservation mandate of the NPS. For example, this intent is reflected in a number of YNP management guidance documents (i.e. YNP Master Plan (1973) and Environmental Assessment (1974) and the 1983 and 1995 Resources Management Plans). These documents all restate the same general management theme which is to "perpetuate the natural ecosystems within the park in as near pristine conditions as possible for their inspirational, educational, cultural, and scientific values for this and future generations, with minimal disturbance by man's activities." (emphasis added) Furthermore, the Master Plan EA specifies that "all planning for public use of national parks must give priority to the preservation and maintenance of the natural values for which each park was established." (emphasis added). This information, in combination with the statutes, regulations, policies, guidelines, and other directives provide compelling evidence that snowmobiling, snowcoach use, and road grooming are not appropriate activities in the Parks or any national park because of their substantial adverse impacts on the environment.

To accomplish these goals, the EO directs agency officials to specify, through regulation, the areas and routes on public lands on which ORV use will be permitted. Those areas where ORV use is permitted will be based on, among other things, "the protection of the resources of the public lands," id. at § 3(a), and shall "be located to minimize harassment of wildlife or significant disruption of wildlife habitats." Id. at § 3(a)(2). Within National Parks, such routes shall only be designated "if the respective agency head determines that off-road vehicle use in such locations will not adversely affect their natural, aesthetic, or scenic values." Id. at § (4). The EO also requires agencies to establish a mechanism to monitor ORV use and impacts and to respond appropriately to such information. Id. at § 8.

In response to this Order, in May 1974, the NPS designated the specific routes in YNP upon which snowmobile use was permitted (39 Fed Reg 16151). The designated routes, the selection of which was allegedly "guided by the criteria in sections 3 and 4 of EO 11644," Id., consisted of nearly all of the unplowed roadways.

In 1977, EO 11644 was amended by EO 11989. The amendment authorized "the respective agency head..., whenever he determines that the use of off-road vehicles will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat..., (to) immediately close such areas or trails to the type of off-road vehicle causing such effects, until ... such adverse effects have been eliminated and ... measures have been implemented to prevent future recurrence." Executive Order 11989, 42 Fed. Reg. 26959 (1977) reprinted in 42 U.S.C. § 4321 (emphasis added). This closure authority must be invoked when the agency head has determined that ORV use may or will cause adverse environmental impacts.

In response to EO 11989, a 1978 EIS examining off-road vehicle use on public lands, and a subsequent DOI Memorandum on ORV management and use, the NPS revised its snowmobile regulations (44 Fed Reg 47412). In an abrupt and complete reversal of its previous reliance on EO 11644 in designating snowmobile routes, the NPS declared that the restrictions of EO 11644 do not apply to the vast majority of snowmobile use in National Parks. The NPS accomplished this result simply by re-defining most snowmobile use as not entailing ORV use. Specifically, the revised regulation states that:

> Off-road vehicle use is not regarded as an appropriate use in the National Park System. Therefore snowmobiles will generally be permitted to operate on those established roads and on frozen water ways where other motor powered vehicles are allowed at other times. In those very limited places where off-road use of snowmobiles is permitted through Special Regulation, the provisions of Executive Order 11644 and 11989 will be enforced.

The rule provides no further explanation or "reasoned analysis"[17] for declaring that EO

[17]See Motor Vehicle Manufacturers Association of the United States, Inc. v. State Farm Mutual Automobile Insurance Company, 463 US 29, 77 L Ed 2d 443, 103 S Ct 2856 (1983) ("An agency's view of what is in the public interest may change, either with or without a change in

11644 was not applicable to snowmobile use and management in National Parks except under the rare circumstance where snowmobile use is permitted through special regulations to be used off the established roadway.[18]

Clearly, this new interpretation was designed to avoid compliance with the monitoring and mandatory closure provisions of EO 11644, as amended, by arbitrarily determining that snowmobiles are not ORVs when used on established roadways covered with snow. This is an inaccurate interpretation of the definition of an off-road vehicle in the EO. Contrary to the NPS interpretation, the definition of ORV in the EO is not intended to apply to where the vehicle is used (i.e., on or off of an established roadway) but, rather, simply refers to a "category of vehicle capable of cross-country travel on or immediately over land...snow...or other natural terrain..." Id. at § 2(3) (emphasis added). This definition clearly applies to snowmobiles in the National Parks.

In yet another reversal of its interpretation of the applicability of EO 11644, as amended, to snowmobile use in the Parks, the NPS now appears to believe, as it should, that the EO is applicable to snowmobile recreation in the Parks. Draft EIS at vii. Specifically, in summarizing the preferred alternative, the NPS states that "using the criteria stated within Executive Order 11644 (as amended) and its implementing regulation (36 CFR 2.18), monitoring results demonstrating disturbance to wildlife or damage to park resources would be cause to implement actions for mitigating these conditions (for example, closure to winter use or trail restriction)." While the apparent NPS decision to reapply EO 11644, as amended, to snowmobile recreation in the Parks corrects a mistaken interpretation made many years ago, it also raises the question as to whether snowmobiling in national parks is consistent with this Presidential directive.

Unlike many Executive Orders which simply represent an administration's desire or preference and is not legally binding, EO 11644, as amended, has been held to be legally binding on the NPS. See Conservation Law Foundation of New England, Inc., v. Clark, 590 F.Supp 1467 (1984). In addition, the NPS has promulgated a regulation, 36 C.F.R. §2.18, implementing the intent of the EO. NPS Policies indicate that off-road vehicle use (which by definition in the EO includes snowmobiles) on units of the national park system is governed by EO 11644, as amended. Policies at 8:4. More specifically, "within the national park system, routes and areas may be designated for off-road motor vehicle use only by special regulation and only in national preserves, national seashores, national lakeshores, and national recreation areas." Policies at 8:4. A separate provision authorizes the designation of snowmobile routes within the national park system but does not explicitly limit such use to national preserves, lakeshores, or recreation areas. Policies at 8:5. If, as NPS Policies indicated, EO 11644, as amended, applies to both off-road vehicle and snowmobile use in the national park system and if, as is the case, EO 11644 includes

circumstances. But an agency changing its course must supply a reasoned analysis...)."

[18]In response to a January 1996 FOIA request on this and other subjects, the NPS provided no records relating to its change in interpretation of the applicability of EO 11644 to snowmobile use in National Parks.

snowmobiles in its definition of off-road vehicles, then it would not appear that the NPS has authority under the EO or its own policies to designate routes open to snowmobile use within national parks, like YNP and GTNP. If the NPS has an alternative interpretation of this apparent conflict it must disclose and discuss this matter in the final EIS.

Based on the foregoing analysis of the NPS legal mandates and considering the adverse environmental impact associated with snowmobiling and trail grooming in the Parks, the elimination of these activities from the Parks must be subject to analysis and, ultimately, prohibited if the NPS intends to comply with the law. There is no wiggle room or alternative means of permitting motorized oversnow vehicle access to the Parks -- if it causes adverse environmental impacts -- without violating federal law. Snowmobiles, as documented in the Draft EIS, associated reports, and the scientific literature cause adverse impacts to wildlife, air and water quality, non-motorized users, natural quiet, and to the ecology of the Parks. While snowcoach operation alone may substantially reduce the pollution and noise impacts associated with snowmobile use, the presence of groomed routes to facilitate snowcoach and snowmobile use of the Parks will continue to exert an unnatural influence on wildlife populations thereby impacting wildlife population dynamics, movements, distribution, and habitat use patterns to the detriment of important and unique habitats like the geothermal areas which are so unique to YNP.

SPECIFIC COMMENTS ON DRAFT EIS:

As the foregoing evidence indisputably demonstrates, snowmobiling, snowcoach operation, and trail grooming result in environmental impacts which make these activities inconsistent with NPS statutes, regulations, policies, and other guidance. This evidence, in and of itself, should be adequate to end this debate and to conclude these comments. Unfortunately, though this legal perspective is clearly obvious to any unbiased observer, the fact that the NPS has not already prohibited motorized oversnow vehicle access to the Parks and its failure to even acknowledge the illegality of such use in the Draft EIS or to seriously consider a prohibition on these activities indicate that there are political, economic, historic, or other factors influencing the NPS decision-making process in this matter. The remainder of these comments, therefore, focus on the content of the Draft EIS and will demonstrate the significant deficiencies contained in the analysis. It must be noted, however, that this analysis is provided solely to identify inadequacies in the Draft EIS and does not constitute support for the process used to develop the Draft EIS.

1. The involvement of cooperating agencies in the Draft EIS was illegal and has inappropriately influenced the content and analysis in the Draft EIS:

This is not a new concern. From the very beginning of the Draft EIS process shortly after the settlement agreement was finalized, certain politicians in collusion with the Council on Environmental Quality (CEQ) compelled the NPS to accept cooperators in the Draft EIS process. The cooperators were not limited to the states (WY, ID, MT) but also eventually included several counties surrounding the Parks. While The Fund and BLF recognize that the CEQ made some very unfortunate decisions, at least in part due to political pressure, which created the cooperator

fiasco, the NPS and DOI remain at fault for not more aggressively opposing the involvement of cooperators in this process. Furthermore, the NPS has never documented the alleged special expertise of the cooperators and it has inappropriately allowed the cooperators to participate in portions of the Draft EIS process which should have been limited to only NPS involvement.

NEPA defines a "cooperating agency" as a any federal, state, or local agencies which "has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal ... for legislation or other major Federal action significantly affecting the quality of the human environment." 40 C.F.R. §1508.5. In this case, none of the cooperators have any jurisdiction by law over winter use in the Parks. Thus, as clearly intended by the regulation, the expertise of the cooperators must involve the environmental impacts of an action. Alleged economic expertise should not qualify a state or local agency as a cooperator. Yet, this is precisely what has happened as the alleged expertise of the majority of the cooperators is limited to economics.

Even if an expertise in economics qualified a state or local agency to be a cooperator, that expertise would have to be linked to the economics of winter use activities in the parks. As explained in greater detail below, the Draft EIS places an unnecessary emphasis on the economic impacts of winter use in the Parks on the state, regional, and gateway community economies when there is nothing in NEPA which mandates such analysis. The analysis of the economic impacts of winter use management of the Parks, is supposed to be limited to the Parks. The fact that a potential change in winter use management inside the Parks may alter the economies (either adversely or beneficially) of communities outside the Parks is largely irrelevant and certainly should not be a focus -- as it is -- of the analysis in the Draft EIS. If the impact of the federal action on the economies of states and communities is not a required or critical part of the analysis then expertise in what is an irrelevant area of analysis cannot qualify a state or local agency as a cooperator.

The NPS did not need the cooperators to prepare the Draft EIS. Indeed, if anything, the involvement of the cooperators has reduced the quality and comprehensiveness of the analysis in the Draft EIS. If the cooperators had not been involved, the NPS still could have requested information from them for use in the Draft EIS and the state and local agencies could have participated, like everyone else, in the decision-making process during the present public comment period.

The adverse consequences of involving the states and counties as cooperators in the Draft EIS process is most evident in the development of alternatives. First, it is not at all clear why the cooperating agencies were involved in exercises to develop alternatives when this process had nothing to do with the alleged expertise of the cooperators. Developing alternatives, as required by NEPA, is a matter of identifying a reasonable range of options which presumably are consistent with law and which will not cause impairment. Economics have nothing to do with developing the content of different alternatives and are only relevant when the environmental consequences of each alternative is evaluated.

In this case, however, the state and county cooperators played a significant role in creating an assortment of alternatives from which the NPS developed the alternatives offered in the Draft EIS. Not surprisingly, given the interests of the state and county cooperators in ensuring that motorized oversnow vehicle access to the Parks continued, they failed to develop a single alternative which prohibited or even significantly reduced snowmobile use in the Parks -- the only option that is consistent with federal law (See Transcript of Cooperators' Alternatives Workshop, October 14-16, 1998). In response, the NPS offered seven alternatives in the Draft EIS, six of which continue to permit snowmobile access to the Parks and not a single alternative which prohibits motorized oversnow vehicle use of the Parks. The no-snowmobiling alternative was, as described in greater detail below, considered but rejected because "oversnow motorized use is considered to be within the range of recreation opportunities to be provided" and since "total elimination of oversnow motorized use without analysis would not be within the scope of the purpose and need for action." DEIS at 38.

Given the historical tendency of the NPS to favor public use over environmental protection in the Parks, it is not known whether the NPS would have developed a different set of alternatives, including a no-snowmobiling alternative, had the cooperators not been involved in the alternative formulation process. Their illegal and unnecessary involvement in developing potential alternatives, however, clearly influenced NPS decisions. The damage to the Draft EIS process caused by the involvement of the cooperators has been done and cannot be reversed. To mitigate for this damage, the NPS must complete the EIS process on its own terms without any involvement of the cooperators or their political supporters and develop a winter use alternative which is consistent with federal law and which protects and preserves the Parks and their natural features in perpetuity for the benefit of current and future generations. Continued involvement of cooperators in the process will only result in damage to the analysis and an end product of dubious value and legality.

2. The analysis of economic impacts in the Draft EIS is unnecessary and misplaced:

The NPS goes out of its way to consider the economic impacts of winter use management on the three-state (MT, ID, WY) economy, the economy of the Greater Yellowstone Area, and of the gateway communities. Remarkably, although NEPA is primarily devoted to identifying and analyzing the environmental impacts of an agency's action, the economic impact of alternative winter use management strategies is not only the very first impact discussed under each alternative but the importance of this impact is clearly elevated over other impacts, including the impacts to the wildlife, identified in the Draft EIS. This emphasis on the economic impacts of winter use beyond the borders of the Parks is unnecessary and misplaced.

First, the NPS is not responsible for the economic viability of the states of MT, ID, WY, the GYA, or the gateway communities. If any of these entities have pursued irresponsible development based on a presumption that visitor access to the Parks would continue indefinitely without change, any economic loss associated with a change in visitor access policy is the fault of the community and city leaders, planners, and private investors, not the NPS. The gateway

communities and the states of ID, WY, and MT have and continue to economically benefit from the popularity of the Parks and should be understanding, not obstructive, if the NPS determines that visitor access practices, like snowmobiling, must be terminated in order to protect the features and integrity of the Parks over the long-term.

Second, the primary thrust of NEPA is to evaluate the environmental impacts of federal actions. While the definition of impact or effect under NEPA includes reference to economics, this impact must be subservient to ecological impacts of the action. If federal agencies were required to emphasize the economic impacts of their actions on communities, regions, and entire states over the environmental effects of agency action, surely such direction would have been clearly elucidated in NEPA or in regulations implementing NEPA. This is not the case. Indeed, there is not a single definition or other provision in the Council on Environmental Quality's NEPA implementing regulations which suggests that such an emphasis is appropriate or that the economic impacts of agency action on lands beyond the agency's responsibility or jurisdiction must be considered. If such a focus were required and if it resulted in decisions which favor economic needs over the protection of the environment, the intent of NEPA to protect and enhance the quality of the human environment would be seriously compromised, if not negated. While it has been claimed that NEPA does not require federal agencies to make decisions which are beneficial to the environment, the plain language of the CEQ regulations specify that "the NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." 40 C.F.R. §1500.1(c) (emphasis added).

Third, the economic analysis must be linked and limited to the ecological and economic effects where the action occurs. In this case, the potential alteration of winter use policies is limited to the Parks. The Draft EIS contains no proposal which affects or alters the ability of individuals to snowmobile, operate snowcoaches, or groom snowmobile routes on private, state, or federal lands outside of the Parks. The emphasis of the economic impact analysis, therefore, must be limited to the Parks and how potential changes in winter use strategies will affect the economics of the Parks. While this analysis must include an assessment of how different winter use alternatives would impact park-specific economics (i.e., entrance fees, costs of grooming/plowing, costs of winter staffing of warming huts and other visitor facilities, costs of ranger patrols, costs of search and rescue/medical emergencies, costs of road repair due to damage caused by grooming, costs of acquiring, maintaining, and operating NPS snowmobiles/snowcoaches/trail grooming equipment), costs which have not been sufficiently disclosed or evaluated in the Draft EIS, it also must include an assessment of the environmental costs associated with winter use. This category of cost is more difficult to define but it is equally, if not more important, in assessing the totality of the economic impacts of the action.

There is, for example, an economic cost associated with the pollution generated by snowmobiles and its impact on air quality, water quality, vegetation, ecology, and the visitor experience. This cost must be calculated using appropriate and legitimate economic models or tools and must be disclosed as a cost of snowmobiling in the Parks. Similarly, the economic costs

of the harassment or disturbance to wildlife associated with winter use activities, particularly snowmobiling, must also be calculated and disclosed. Such disturbance may make wildlife more skittish and less observable both in the winter and in other seasons or it could adversely impact the health and productivity of individual animals or affected population impairing survival and long-term viability. Bison use of the groomed snowmobile route system in YNP which may facilitate emigration from the park where the bison may be killed also carries with it an economic cost which must be evaluated as part of the overall economic impact of winter use. In addition, the economic cost of road damage caused by the grooming of the snowpack and the removal of the packed snow in the spring must be considered. This cost, however, is not limited to the cost of repairing the damaged roads, but also include the economic costs associated with the negative impacts on visitors who use these damaged roads and experience road renovation delays during the spring, summer, and fall seasons. These are just a few examples of the many environmental impacts whose economic costs must be calculated and considered. Other examples include the impact of motorized oversnow vehicle access on natural quiet, the economic cost of air and water pollution caused by snowmobile emissions, and the public health costs associated with illness or injury caused by or associated with snowmobile use.

Contingent valuation, which is an economic tool endorsed and used by the federal government to assess the economic costs in natural resource damage incidents and which was used to calculate the non-market value of winter visitation, a cleaner and "greener" snowmobile, and of plowing the road from West Yellowstone to Old Faithful in the Parks, provides a legitimate means of assessing such costs. Surveys should be developed and implemented to determine how much people, including those who have or will visit the Parks and those who may never visit the Parks, would be willing to pay to experience or know that the air and water of the Parks is clean, the value of undisturbed park wildlife, the value of a free-ranging bison, and the value of solitude, serenity, and natural quiet in the Parks. While survey content and methodologies are not flawless, if the survey was constructed and implemented properly, the NPS should be able to obtain some indication of the value of clean air and water, undisturbed wildlife, free-ranging bison, and natural quiet to the public.

Even if the current scope of the economic analysis in the Draft EIS were appropriate, the content of the analysis remains deficient. Except for reference to the non-market value of a visit to the Parks, of renting a "greener" snowmobile, and of plowing the road from West Yellowstone to Old Faithful, the economic analysis only considers one side of the economic equation. As indicated above, there is a variety of costs associated with snowmobile use and road grooming which have not been estimated or incorporated into the analysis. It is entirely inappropriate for the NPS to consider the economic impacts of the different management alternatives on the gateway communities without considering the economic implications to the Parks and their features, resources, and values of continuing to permit motorized oversnow vehicle access. The totality of the economic cost of snowmobiling, snowcoach use, and road grooming, including the cost of adverse impacts to the Parks, wildlife, air and water quality, visitor experience, and natural quiet, must be considered for the economic analysis to be complete.

3. The process used to formulate alternatives in the Draft EIS has resulted in a set of inadequate alternatives which do not encompass a reasonable range of options in violation of NEPA:

According to the Draft EIS, the alternatives subject to serious consideration were created in response to the major issues and concerns raised through the public and internal scoping processes (DEIS at vii). While it is not articulated anywhere in the Draft EIS, the alleged major issues and concerns appear to include visitor use and access, visitor experience, air quality, snowmobile sound or natural quiet, human health and safety, economics, and natural resources (DEIS at 158). In order to be considered as part of an alternative, each potential winter use concept generated through scoping or in NPS and cooperator meetings was evaluated in terms of its responsiveness to the major issues and concerns, the decision to be made, the purpose and need for the winter use plan, and its adherence to current law, park management guidelines, and NPS mandates and policies (DEIS at vii). This process is fundamentally flawed and has resulted in the evaluation of alternatives which, without exception, are illegal, inappropriate, and which will not remedy the substantial adverse impacts of winter recreation, particularly snowmobiling, snowcoach use, and trail grooming on the environment.

First, several of the major issues and concern topics are based on a presumption that motorized oversnow vehicle access to the Parks is required by some unknown and unidentified authority. The categories themselves are not inadequate as there are issues associated with visitor use and access and visitor experience which can be accommodated without violating federal and NPS standards. For example, cross-country skiing if done in a manner and in an area where disturbance or harassment of wildlife can be prevented, is permissible under the existing legal framework. The NPS, however, has apparently interpreted the visitor use and access and the visitor experience categories to pertain to motorized oversnow vehicle access when such access, considering its environmental impacts, is in conflict with NPS mandates. Similarly, the NPS has emphasized the economics of winter access, particularly snowmobile access to the Parks, in interpreting and addressing the economics category.

The identified major issues and concerns may accurately reflect the results of scoping and various meetings. The emphasis on snowmobiles in evaluating these topics may also be in line with the public's, cooperators', and NPS's concerns. However, if the issues and concerns, or the emphasis placed on these topics, are not consistent with federal law and NPS regulations and policies, then either the topics or the emphasis must be changed.

Second, though the winter use management concepts were evaluated in terms of the decision to be made, nowhere in the Draft EIS does the NPS define what that decision is. Presumably, the decision to be made relates to winter use management in the Parks, yet the details of the decision are not identified anywhere in the Draft EIS. If the NPS bases the formulation of alternative winter use management strategies on one or more decisions relevant to winter use management, then surely it must disclose what those decisions are.

Third, the purpose and need for the Draft EIS and its analysis of winter recreation issues is, as stated in the DEIS, based on the differences between desired conditions and existing conditions. The Draft EIS identifies seven desired conditions, including:

- Visitors have a range of quality winter experiences and settings from primitive to developed;
- Recreation experiences are offered in an appropriate setting: they do not take place where they will adversely impact sensitive natural resources, air quality, wildlife, cultural areas, or the experiences of other park visitors;
- Winter recreation complements the unique aspects of each landscape within the ecosystem;
- High quality facilities are provided in parks to support the need for safety and enhanced visitor experiences;
- Conflicts among user groups are minimal;
- Visitors know how to participate safely in winter use activities without damaging resources;
- Snowmobile sound and emission levels are reduced to protect employee and public health and safety, enhance visitor experience, and protection of natural resources.

The NPS provides no indication as to who developed these desired conditions or how they were developed. Though snowmobile recreation is not referenced in six of the seven conditions, it is clear from the analysis in the Draft EIS that the NPS believes that motorized oversnow vehicle access to the Parks is essential if the desired future conditions will be satisfied.[19] This presumption or position, as previously stated, is not consistent with federal and NPS statutes, regulations, policies, guidances, and other directives. Thus, at a minimum, the NPS must disclose the origins of these desired future conditions and must reevaluate them in regards to those types of winter recreation opportunities which can be permitted and which are consistent with legal standards. Remarkably, even if these conditions were properly linked to snowmobile use, the second condition, considering the adverse environmental impacts associated with snowmobile use, should effectively prohibit such use anywhere in the Parks. The NPS must have entirely ignored this condition in evaluating the management concepts which were used to formulate the alternatives.

Fourth, it is inconceivable that the NPS subjected the management concepts resulting from scoping to review under NPS statutes, regulations, policies, and other guidance. If it had done so, then the alternatives evaluated in the Draft EIS would have been entirely different since snowmobiling, snowcoach use, and trail grooming would have been determined to be inconsistent

[19]The seventh desired future condition which does reference snowmobiling is particularly troubling because the inclusion of this condition suggest that the NPS is attempting to avoid seriously considering a no-motorized oversnow vehicle access alternative. Conveniently, by including this condition the NPS can automatically claim that any alternative which prohibits oversnow motorized vehicle access does not satisfy the purpose and need criteria.

with NPS legal mandates. As requested in the past and in these comments, if the NPS believes that motorized oversnow vehicle access to the Parks and road grooming, considering the environmental impacts which are conceded by the NPS, is authorized under NPS legal mandates it must provide a comprehensive explanation for this determination.

As a result of this flawed process, the NPS developed seven alternatives, none of which is acceptable or consistent with NPS legal mandates. Each of the alternatives, except for Alternative G, continues to permit snowmobile use of the Parks to varying degrees. Alternative F, which would close the west side of YNP to snowmobiles, snowcoaches, and trail grooming is the only alternative which even remotely begins to appropriately address the adverse impacts of motorized oversnow recreation in a manner which is consistent with NPS legal standards. This alternative, however, continues to permit snowmobiling, snowcoach use, and trail grooming on several routes within YNP which will ensure and prolong continued adverse environmental impact to the natural features and resources in the Parks. In GTNP and JDRMP this alternative eliminates the Continental Divide Snowmobile Trail and significantly restricts motorized oversnow vehicle access in these parks to the benefit of Park wildlife, ecology, and other features and values.

The preferred alternative (Alternative B) continues to permit snowmobiling, snowcoach use, and trail grooming throughout the Parks. The most significant change imposed by this alternative is a proposal to plow the road between West Yellowstone and Old Faithful to permit access by wheeled vehicles. While this alternative was intended to increase the accessibility of YNP to a larger number of people, its environmental impacts are so severe -- as conceded by the NPS – that it should never have been considered as a legitimate alternative, much less the preferred alternative. Not only would this alternative drastically and adversely impact wildlife, but it could potentially double the number of visitors entering YNP from the west entrance. More visitors, regardless of their mode of access, corresponds to greater impacts on the land and wildlife. During the winter season, when wildlife are already stressed as a result of climatic conditions, increasing public use of YNP is antithetical to responsible wildlife conservation and preservation. Other alternatives which increase public use, including motorized oversnow vehicle use of the Parks, like Alternatives C and D, suffer from similar deficiencies.

Alternative B also proposes to establish advisory committees to address snowmobile noise and emission issues. While the NPS may desire to avoid the need for any substantive decisions as a result of this EIS process by establishing advisory committee and by continuing scientific, such delays are not acceptable and not consistent with NEPA. The EIS is not intended to be a road map for endless research and delayed decision-making. Rather, it was expected and it is required by law that the EIS process result in explicit management direction for winter use activities in the Parks.[20] A failure to make such decisions represents a violation of NEPA.

[20]In addition, the statement by the NPS that it will not implement the decision made in the ROD for a year is also unacceptable and in violation of NEPA. Once the ROD is issued the management direction contained in the ROD must be implemented without delay. NEPA provides no allowance for an agency to arbitrarily delay the implementation of its ROD regardless

Alternative E, which is best described as the adaptive management alternative, does not call for any immediate changes in motorized oversnow vehicle access to the Parks. Changes to such use would only come when justified by "scientific study." Linking changes in motorized use of the Parks to future scientific study is likely to ensure the indefinite continuation of such uses without substantive change. While The Fund and BLF do not object to continued scientific study, basing management changes on absolutely conclusive scientific evidence is doomed to failure. Regardless of the legitimacy or comprehensiveness of a study, there will always be experts who will critique the study in favor of one interest or another. As a result, the NPS, in response to political pressure or its own internal inertia to favor public use over park preservation, will always be able to avoid any difficult or substantive change in motorized oversnow vehicle use because of the scientific conflict in interpreting research results.

Furthermore, this alternative should be rejected immediately because it serves only to delay the inevitable changes in motorized oversnow vehicle access to the Parks. Additional study is not necessary to understand that snowmobiling, snowcoach use, and trail grooming substantially and adversely impact park wildlife, ecology, air and water quality, non-motorized users, and natural quiet. Indeed, the Draft EIS concedes many of these impacts raising questions about why any additional study is necessary to document what is already known. The NPS must not fall into the trap of studying an issue indefinitely without making substantive changes based on existing evidence. Such an approach is not consistent with the legal standards that the NPS is required to meet in order to protect and preserve the natural features and resources of the Parks.

Neither The Fund nor BLF are opposed to conducting scientific studies before making management decisions. However, the only context in which this scenario is sensible is if the action has not already been initiated. Conducting studies after an action has been initiated in order to determine the environmental impacts of that action is non-sensical.

In the context of this issue, continuing to permit motorized oversnow vehicle access to the Parks pending scientific study which demonstrate one or more impacts is not appropriate and the burden of proof is misplaced. Technically, such access should not even be permitted because the NPS has never adequately complied with NEPA. By imposing a scientific study trigger for management changes while continuing to permit use, management changes will not occur unless there is demonstrable evidence that motorized oversnow vehicle use adversely impacts park features and resources. Though this evidence already indisputably exists, the evidentiary burden established by this approach is very different than closing the Parks to motorized oversnow vehicle access and only permitting such use if demonstrable evidence exists that such use does not cause adverse impacts.

Finally, Alternative G is the only alternative that prohibits snowmobile use of the Parks. Unfortunately, due to its baseless presumption that some form of motorized oversnow vehicle access to the Parks is required, this alternative continues to authorize snowcoach use of the Parks.

of the alleged reasons or need for such a delay.

To facilitate efficient and safe access to the Parks by snowcoaches, the snow-covered road surfaces have to be groomed. Grooming, as explained above and below, results in substantial impacts to wildlife and other park features which have not been adequately evaluated or, in some cases, even disclosed in the Draft EIS.

None of the alternatives evaluated in the Draft EIS are reasonable.[21] NEPA requires federal agencies to consider a reasonable range of alternatives in any EIS. 40 C.F.R. §1500.2(e). Remarkably, the one alternative that is reasonable -- a ban on snowmobiles -- was considered and rejected in the Draft EIS because "oversnow motorized use is considered to be within the range of recreation opportunities to be provided" and since "total elimination of oversnow motorized use without analysis would not be within the scope of the purpose and need for action." Draft EIS at 38. These excuses for not evaluating this alternative simply don't make sense.

First, there is no explanation in the Draft EIS as to why motorized oversnow vehicle use is within the range of recreation opportunities in the Parks. There is, as previously stated, no legal basis for this statement so it is unclear why the NPS believes that this is the case. If there is evidence to support this statement it must be provided and the public must have an opportunity to evaluate, research, and comment on this evidence.

Second, as explained above, the desired future conditions which allegedly substantiate the purpose and need for the Draft EIS and for a winter use management plan have not been independently justified, their origins are unknown, and they are not consistent with NPS legal mandates. Because of the desired future conditions that the NPS decided to use to define potential alternatives it has, perhaps intentionally, ensured that a no-snowmobiling alternative would not satisfy the conditions thereby justifying its rejection. If the NPS had defined the purpose and need for the plan and Draft EIS in a manner which was consistent with its legal mandate, then a no-snowmobiling alternative would have been required to be seriously considered as an alternative.

Third, the argument that a no-snowmobiling alternative can be rejected from serious consideration because it hasn't been analyzed is preposterous. The purpose of the Draft EIS was to provide the mechanism where all reasonable alternatives, including a no-snowmobiling alternative, could be analyzed as to their environmental impacts. The failure of the NPS to subject the no-snowmobiling alternative to such an analysis, regardless of the reasons, should not then be used to justify the exclusion of the alternative from serious consideration. As previously

[21]The NPS defines a reasonable alternative as "one that not only addresses the problems identified through scoping, but also complies with the stated purposes and need for the winter use plans, as well as laws, regulations, and National Park Service policies." See Alternatives Workshop for the Winter Use Plans and Environmental Impact Statement for Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway. None of the alternatives evaluated in the Draft EIS is consistent with NPS laws, regulations, and policies and, therefore, none can be deemed reasonable.

indicated, NEPA requires that a no-snowmobiling/no-road grooming alternative be subject to serious consideration in the Draft EIS.[22] Such an alternative cannot be avoided in this case because of the NPS's failure to subject winter use management to NEPA review nearly thirty years ago. If the NPS had complied with NEPA, and had not implemented the action prior to NEPA compliance, then a no-motorized oversnow vehicle access alternative would have been offered as the no-action alternative because it would represent the status quo. The NPS cannot undermine NEPA at both ends by implementing the action and then, when it belatedly prepares an EIS, refusing to even give serious consideration to prohibiting the activities that were earlier implemented with no NEPA compliance.

Other potential alternatives which could have been considered are identified below. The fact that these alternatives are identified here does not mean that they necessarily would comply with NPS legal mandates or that they would be supported by The Fund or BLF. They are offered because there is no legitimate reason why they were not considered, they are technically and logistically feasible, and to demonstrate that the present list of alternatives is inadequate.

- Close YNP to all motorized oversnow vehicle access except for the south entrance road to Old Faithful while retaining all existing uses in GTNP and JDRMP. This alternative would reduce the environmental impacts of snowmobiles and groomed routes on wildlife in YNP. This has been proposed by Dr. Mary Meagher who, in her November 17 comments on the Draft EIS, stated that:

> ...no other solution will maintain a bison population within Yellowstone National Park that functions according to fluctuations in natural ecological parameters. After nearly 2 decades of learning from and thinking about the ramifications, I see no other biological solution. No other approach will preserve this unmatched natural resource that the agency is charged to protect.

- Close YNP entirely to all motorized oversnow vehicle access while continuing to permit snowmobile use of GTNP and JDRMP on the Continental Divide Snowmobile Trail and other routes if wildlife impacts can be prevented.

- Reduce motorized oversnow vehicle access to the Parks to a single month and restrict the number of users which can access the Parks each day. This alternative, while it would not eliminate adverse impacts, would concentrate these impacts into a single month while reducing the impacts by limiting the number of daily users.

- Permit motorized oversnow vehicle access to YNP on the following routes: Mammoth to Indian Creek campground; west entrance to 7-mile bridge; south entrance to Lewis Lake campground; and the east entrance to Sylvan Lake (or Sylvan Pass). This alternative was

[22]This expectation was included in the EIS scoping comments submitted by Schubert & Associates on behalf of The Fund.

suggested by Caslick (1997) as a means of protecting the unique and fragile thermal areas located primarily in the interior of YNP which provide crucial winter habitat for park wildlife, particularly ungulates.

- Prohibit road grooming, severely restrict the number of snowmobiles permitted in the Parks each day, and reduce the season length for snowmobile use in the Parks. This alternative would eliminate road grooming which is not currently legal and would reduce the impacts associated with motorized oversnow vehicle access by establishing a limited daily quota of snowmobile entering the Parks and by reducing the length of the winter season for motorized users.

4. The Draft EIS fails to disclose or discuss the significant environmental impacts associated with trail grooming:

As previously indicated, road grooming to delineate snowmobile routes is not permitted by NPS regulation. Yet, through the discretionary authority of the Superintendent, road grooming has been practiced in YNP since the early 1970s. Far from being a relatively innocuous decision, road grooming results in substantial environmental impacts which have never been appropriately evaluated by the NPS. Not only must the NPS discuss the legal basis for grooming snowmobile routes, but it also must provide a comprehensive evaluation of the environmental impacts of trail grooming instead of continuing to consider grooming to be a relatively benign activity which has always been practiced in the Parks.

First, trail grooming is directly correlated with snowmobile use. As evidenced by a survey conducted of national parks which permit snowmobile use, those parks which permit trail grooming receive far more snowmobile use than parks without groomed routes. Of the 28 park units in the lower 48 states surveyed, only 6 are known to permit trail grooming. Of these six, four (i.e., YNP, GTNP, JDRMP, and Voyageurs National Park) receive far greater snowmobile use than nearly all of the remaining Parks.[25] In YNP, grooming was initiated by the concessionaires, but quickly became an accepted practice by the NPS (Yochim 1998). According to former YNP Superintendent Jack Anderson, grooming substantially increased snowmobile use in the park:

> We made a determination that we should expend some funds and experiment a little bit with road grooming. ... Once we started that, then the whole program started to explode and travel increased perceptibly ... The increase in use just came automatically, almost simply because we had started grooming. It made the [park] unit safe, gave a pleasant trip, and yet it gave access into the Park. You know what happened after that. Cited in Yochim (1998).

[25]The only parks which experience significant snowmobile use and do not facilitate that use by grooming snowmobile routes are the Rocky Mountain National Park and Pictured Rocks National Lakeshore. In Rocky Mountain National Park, approximately 86 percent of snowmobile use occurs along a 1.5 mile stretch of road which traverses the corner of the park between forest service and private land.

As the number of snowmobiles increase, their direct, indirect, and cumulative impacts increase. More snowmobiles correlate to more pollution and greater degradation of air and water quality, greater impacts to wildlife as a result of disturbance and harassment, greater impacts to the natural quiet of the parks, and increased disturbance of non-motorized recreationists. If groomed snowmobile routes did not exist, snowmobile use of park units would likely decline due to the increased difficulty of operating snowmobiles under such conditions, decreased enjoyment associated with snowmobile recreation, and due to the increase in time required to access park features.

Second, trail grooming alters snowmelt patterns and may increase the susceptibility of road surfaces to damage. Grooming compacts the snow on many of the paved road surfaces in the Parks to create a smooth thoroughfare to facilitate snowmobile access. As evidenced in the scientific literature, compaction of snow results in a decrease in temperature compared to non-compacted areas. The compression of the snow crystals along with the reduced temperatures not only slows snowmelt in the spring, but it also may exacerbate road damage.

A reduction in the rate of snowmelt may impact hydrologic patterns and can lengthen the time period during which toxic compounds are released into the aquatic environment. NPS studies demonstrate that such compounds are present in the snowpack, including on the groomed road surface so the potential for the release of toxins into the aquatic system is present. A release of such toxins, whether it occurs rapidly or more gradually, may result in damage to aquatic species and their habitat.

In the Parks in the spring the NPS plows the groomed routes in order to facilitate Park entry by automobiles by mid-late April. Since the timing and techniques used for plowing the routes in the spring are not disclosed in the Draft EIS, it is unclear how these practices may influence the melting rate of groomed routes. The use of heavy machinery to break up and clear the groomed routes may exacerbate road damage. Anyone who has driven in the Parks, particularly YNP, is well aware of the substantial damage to the road surface. While some of this damage is expected as a result of wear and age, the direct, indirect, and cumulative impacts of grooming and plowing may increase the severity and scope of damage. The NPS must disclose and discuss the impact of grooming and plowing on the road surface since this constitutes yet another impact of snowmobile recreation on the Parks, non-winter park visitors, public safety, and on park budgets.

Third, groomed snowmobile routes are used by wildlife as energy-efficient travel routes. The Draft EIS, referenced studies, and the scientific literature document that a large number of wildlife species use groomed snowmobile routes to expedite and ease movements. While bison in YNP have received most of the attention in regard to their use of the groomed trail system, other wildlife including elk, mule deer, coyotes, foxes, wolves, and moose have been documented to use

groomed snowmobile routes. Such use asserts unnatural influences on wildlife populations. Not only may wildlife use of groomed trail alter wildlife distribution, movement, habitat use patterns, and predator/prey dynamics, but because of the energy savings associated with such use, wildlife population dynamics may be substantially affected. Though the Draft EIS claims that wildlife use of groomed routes in the winter, because of the energy savings, is a beneficial impact, because of the natural regulation mandate of the NPS such an impact is entirely unnatural and should not be considered beneficial.

5. The Draft EIS does not properly disclose or evaluate the substantial impacts of snowmobiles and groomed routes on wildlife in the Parks:

Despite the fact that an EIS is intended to contain a comprehensive and objective evaluation of the environmental impacts of the action under review, the Draft EIS frequently provides only a minor glimpse of such impacts by whitewashing its review of many critical issues. The analysis of the impacts of snowmobile and groomed routes on wildlife is a classic example of avoiding a comprehensive review of the available evidence either because the NPS did not have the time to expand its analysis or, perhaps, as an intentional strategy to downplay the significant direct, indirect, and cumulative impacts of these activities on wildlife.[24] The NPS cannot claim that it was unaware of the evidence as both Attachments 1 and 2 contain summaries of the evidence which could have and should have been used by the NPS in the Draft EIS. To ensure that this evidence is considered as the EIS process continues, this information is included below. The information has been augmented with new evidence or analysis as necessary to demonstrate the severity of the adverse impacts of snowmobiles and groomed routes on wildlife.

A number of environmental variables, including climate, influence ungulate productivity, survival, and calf recruitment. For bison in YNP, however, Dr. Mary Meagher, a former NPS biologist and the world's leading authority on YNP bison, has concluded, based on decades of data and research, that "the existence of snow-packed roads... was the largest factor in contributing to population increase, major distributional changes, and ultimately habitat impacts" (Meagher 1993 -- Included in Attachment 1) (emphasis added). While the majority of the information presented here focuses on the short and long-term, direct and indirect, ecological, and biological implications of bison use of the groomed trail system in YNP, the same concerns, impacts, and implications are relevant to other ungulates who also utilize the groomed routes as energy efficient travel routes.

According to Dr. Meagher, these groomed routes provide bison with energy efficient travel corridors resulting in energy savings within traditional foraging areas while promoting range

[24]Other examples of issues which were poorly evaluated in the Draft EIS include the impact of snowmobiles and trail grooming on threatened and endangered species and subnivean wildlife impacts, and the impact of snowmobile emissions on air and water quality. Additional information about these impacts is either provided in this comment letter and/or is included in Attachments 1 and 2.

expansion, major shifts among previously semi-isolated subpopulations, reduction of winterkill, and an enhancement of calf survival. As a result, YNP's bison population is artificially maintained at a large size which, in turn, has resulted in increased habitat impacts, and the annual movement of hundreds of Park bison into Montana and Wyoming, where most are killed.

The fact that snowmobile use and road grooming necessarily must occur in the winter months exacerbates the impacts of these actions on wildlife because the animals are already in a stressed condition as a result of winter climate. Winter is a critical period for wildlife. Winter climate, including snowfall, depending on its severity and duration, can have a substantial regulatory influence on many wildlife species, particularly ungulates. This is one of several natural regulatory controls on the growth of ungulate populations.

Energy is of crucial importance in the winter. As winter progresses, many animals experience a negative energy balance, with more energy being used to survive than is being consumed in the form of forage. Natural (i.e., predators, snow) or, artificial (i.e., snowmobiles, hunting) perturbations to an animal's environment or behavior which affect, either negatively or positively, an animal's energy balance or stress level can have a substantial effect on survival and productivity, and can impair immune function (Dorrance et al. 1973, Greer 1979, Moen 1978, Hudson 1973, Harlow et al 1987). Moen (1976), for example, stated that:

> Energy and material resources available to white-tailed deer (Odocoileus virginianus) are at their lowest point in the annual cycle during the winter season as weather conditions present a thermal energy sink of greatest relative proportions; there is no positive increment to food resources, snow often renders some of the food unavailable, and accumulating snow increases the energy expenditure necessary for movement.[25]

Snow cover affects an animal's energy balance in several ways. First, snow cover may act as a hindrance to wildlife movement, effectively restricting the amount of habitat available to wildlife in the winter (Formozov 1946, Sweeney and Sweeney 1984). The ability of wildlife to use areas covered with snow depends on variables such as leg length, chest height, foot load, momentum or velocity, body weight, snow density, snow depth, snow hardness, and type of movement (i.e., trotting, walking, running) (Parker et al. 1984, Mattfeld 1973, Telfer and Kelsall 1984). Second, snow cover reduces the availability of forage critical for survival during the winter. (Formozov 1946, Parker et al. 1984). With an increase in energy expenditures caused by moving through snow combined with a decrease in the amount of available forage (Severinghaus 1947, Leopold et al. 1951), a negative energy balance is created, in which more energy is expended than is consumed. As reported by Parker et al., (1984):

[25]Although this study was on white-tailed deer, its findings and conclusions are generally applicable to many ungulate species and other wildlife, since winter affects the energy balance of many species in similar ways. Indeed, many of the studies on winter impacts to particular species, including studies cited in this petition, appear relevant to many other species.

> Snow cover is a major factor influencing the survival of wintering ungulates because it affects their ability to escape predation, the timing and magnitude of migratory movements, and habitat selection. Snow impedes movement, increases energy expenditure, and reduces forage availability. While three basic properties of snow -- depth, density, and hardness -- influence wintering ungulate populations, snow depth has been considered the most important attribute affecting ungulate movement and mobility."

Several studies have demonstrated, for example, that free-ranging elk herds are generally restricted in distribution by snow depths greater than 46 cm (Beall 1974, Leege and Hickey 1977, Adams 1982). Bison movements are likely similarly affected by snow.

Increased energy use resulting from travel through snow may also affect wildlife movements, production, and survival. In elk, for example, the energetic implication of travel through 58 cm of snow is approximately five times the cost of locomotion without snow (Parker et al., 1984). This cost is a function of the depth to which the animal sinks in snow and snow density. Sinking depth and snow density, in turn, are influenced, respectively, by foot loading, leg length, and velocity, and snow depth and hardness. Considering these factors, and given the sheer size of bison, energy costs for traveling through snow must be higher than that reported for mule deer and elk. Conversely, YNP bison may obtain a greater net energy benefit by using groomed snowmobile routes than that achieved by elk or mule deer.

While energy use would be expected to be greater during severe versus mild winters, Hobbs (1989), in his model examining energy use in mule deer, determined that total energy expenditure during a mild winter exceeded predicted expenditure during a severe winter, despite increases in costs of thermoregulation and activity in response to severe weather. As explained by Hobbs, "This seeming paradox occurred because energy intake was greater during a mild winter, and, hence, weight loss was substantially less. Thus, because deer were heavier and because energy expenditure is strongly influenced by body mass, total energy costs were greater during mild winters than severe ones." If this model is accurate, then larger animals, like bison, elk, and other ungulates, would not necessarily benefit energetically from mild winters because of increased energy needs associated with increased body size. Though the total energetic expenditure may be less during severe winters, Hobbs found that energy intake was substantially less and the impacts of disturbance substantially greater during severe winters. Consequently, the impact of snowmobile use on wildlife is likely to be greater during severe winters, but the impacts are not mitigated simply due to mild winter weather conditions.

While winter climate, particularly snow, has an enormous impact on animal energy expenditures and stress, that impact is exacerbated by snowmobiling, and trail grooming, due to the disturbance they cause to many species of wildlife. Indeed, researchers have suggested that additional human caused stress on wildlife in the winter is undesirable (Dorrance et al., 1973; Greer 1979, Moen 1976), since it may increase energy use and stress resulting in increased mortality, decreased productivity, and changes to behavioral adaptations (Moen 1976, Freddy 1977). The effects of recreation-induced stress, including lower reproductive output (Geist 1978),

however, may not be evident immediately, but rather may appear days, weeks, months, or years after disturbances (Gutzwiller 1991). Moreover, recreation-induced stress may exacerbate the effects of disease and competition, and lead to higher mortality well after disturbances occur. Id

In many instances, snowmobiles induce animal flight, causing increased energy expenditures. In Yellowstone, for example, evasive maneuvers in response to snowmobiles have been documented in a number of species, including elk and mule deer. These maneuvers result in increased energy expenditures for the affected wildlife.[26] For example, Aune (1981) reported flight distances of 33.8 meters for elk and 28.6 meters for mule deer in response to snowmobiles in Yellowstone. The energy cost estimates calculated for these impacts were 4.9 to 36.0 kcal in elk and 2.0 to 14.7 kcal in mule deer per disturbance (Parker et al., 1984). These energy expenditures are roughly equivalent to the necessary additional consumption of 4.3 - 31.7 grams of dry forage matter by elk and 1.8 - 12.9 grams by mule deer each time a disturbance occurs. Id. Severinghaus and Tullar (1978) provide an even more graphic example of the potential implications of energy use on wildlife, and specifically white-tailed deer; they theorize that for white-tailed deer, during a 20-week winter with snowmobile harassment each weekend, "food enough for 40 days of normal living would be wasted just escaping from snowmobiles." (emphasis added).

Similarly, Freddy et al. (1986) documented that mule deer moved 158 meters when fleeing from a single encounter with a snowmobile resulting in energy costs per encounter of 10-22 kcal or 0.4-0.8 percent of the daily metabolizable energy. If disturbed by snowmobiles while grazing, the cost per encounter was 0.6-1 percent of their daily metabolizable energy. If disturbed while lying down, the energy expenditure per encounter increased from 2 to 10-25 kcal due to the flight response exhibited by the deer.

The negative energy balance experienced by most wildlife species in the winter results in the depletion of critical fat reserves. The depletion of fat reserves can result in high winter mortality. Human perturbations to an animal's habitat or behavior can lead to increased stress and energy use resulting in increased loss of fat reserves. The direct and indirect consequences of the depletion of fat reserves associated with energy used while moving through snow are precisely those factors which should be regulating the size of Yellowstone's bison population and perhaps other YNP ungulate populations if natural regulation was permitted to function in the Park. In YNP, however, natural regulation does not function in this fashion because of the groomed trail system.

The NPS has admitted that bison, elk, and moose use groomed routes and that such use facilitates access to feeding areas and reduces energy requirements needed to move through deep

[26]Indeed, of all recreational activities studied by Aune (1981), the most significant expenditures of energy created by recreationists occurred "during interaction along the groomed snowmobile trail and when photographers moved up for a closer shot."

snow (See 1990 Winter Use Plan and Environmental Assessment (WUPEA) at 62).[27] In YNP bison, such energy savings have resulted in a decrease in natural winter kill and an increase in survival and productivity. Moreover, the groomed routes provide the bison with increased access to additional or alternative wintering habitat both in and outside of YNP.[28] The population size, movements, and distribution of other ungulate species may be similarly affected as a result of their reliance on the groomed trail system as an energy efficient travel route.

In response to the potential impact of energy savings on the survival and viability of individual animals, the NPS has in the past dismissed this effect by claiming that "encounters with visitors sometimes result in the animals being driven for long distances rather than exiting the road corridors over the high berms, and this increases animal stress and energy consumption" (WUPEA at 62). This admission, though it provides clear evidence of the direct impact of snowmobile use on the stress, energy balance, and ultimately survival of individual animals, fails to consider the different temperament and behavior of various ungulate species in response to snowmobiles and other factors.

The stolid temperament of bison permits their use of groomed routes even in the presence of large numbers of snowmobiles. Moreover, even bison who are initially skittish around snowmobiles quickly become habituated to the machines (Meagher 1993, Aune 1981)[29], thereby reducing energy loss associated with avoiding snowmobiles. For these animals, acclimating to snowmobiles is not beneficial since it facilitates use of the groomed trail system which, in turn, stimulates bison emigration from the park where most are killed. For other ungulates, such evasive maneuvers in response to snowmobiles may occur, though habituation has been observed

[27]A variety of other species have also been documented using snowmobile roads, including white-tailed deer (Richens and Lavigne 1978), wolves (Paquet et al. 1997; International Wolf 1992), coyotes (Aune 1981), red fox (Neumann and Merriam 1972), mule deer (Aune 1981), and elk (Aune 1981).

[28]Though YNP's snowmobile use policy has resulted in an artificially elevated bison population and unnatural movement and distribution patterns causing habitat impacts, a proposal to artificially maintain YNP grizzly bears at abnormally high levels through instituting a supplemental feeding program was rejected by YNP (See 1983 Natural Resources Management Plan and Environmental Assessment). In making this decision, the YNP concluded that past management programs incorporating artificial elements generally proved disastrous on a long term basis. This is precisely what is occurring with YNP bison as a result of trail grooming and snowmobile use.

[29]As snowmobile traffic increased, however, both Aune (1981) and Meagher (1993) reported increased bison use of the groomed routes at night to avoid harassment. Aune (1981) also noted this same temporal shift in other YNP wildlife. Such reactions are not necessarily evidence of habituation, but rather demonstrate that snowmobiling in YNP is resulting in enormous physiological impacts to YNP wildlife causing rather drastic behavior adaptations.

in mule deer and elk in YNP (Aune 1981).

While some animals may become accustomed to snowmobiles (Meagher 1993; Aune 1981), this does not mean that snowmobile impacts to the species are benign. The decrease in animal response to a particular stimulus over time may be in response to a progressive weakening of an animal's physical condition throughout the winter (Richens and Lavigne 1978, Severinghaus 1947) and/or to preserve critical winter energy stores. Although an animal's physical response to a particular stimulus may decrease in intensity with time, internal or physiological responses (e.g. stress levels, heart rate) may consistently rise as a result of such stimuli (Moen et al., 1982, MacArthur et al. 1979, Moen et al. 1978a, Cherkovbick and Tatoyan 1973, Thompson et al. 1968). Such an increase may impair the survival and productivity of an animal.

In his studies involving captive white-tailed deer, for example, Moen et al., (1982), demonstrated an increase in the heart rate of the deer at least 250 percent over baseline levels as a result of snowmobile activity even when the animals did not stand up or move away (See also, Freddy 1977). In response to these findings, Moen et al., (1982) concluded that: "Increases in heart rate and additional movements caused by encounters with snowmobiles must increase rather than decrease energy expenditures by deer. Such increases have the potential to affect the productivity of individuals and, ultimately, of the population."

Thus, even if animals demonstrate no physical response to the presence of snowmobiles, they still may be experiencing adverse effects due to increased stress caused by the machines. Nevertheless, if YNP wildlife habituate to snowmobile presence, this may reduce energy loss associated with evading snowmobiles while increasing energy gains, and the direct, indirect, and cumulative impacts of such gains associated with the use of the groomed trail system. Moreover, even if YNP bison and other wildlife demonstrate a flight response when approached by snowmobiles, the energy cost associated with that extra movement and increased stress may be more than offset by energy gains through the use of the groomed routes.

In Yellowstone, for example, bison use of the energy-efficient groomed roads has reduced the proportion of the bison population succumbing to natural mortality,[30] increased survival and

[30]The proportional decrease in winter kill is reflected in population and winter kill estimates after the winters of 1981-82, 1988-89, and 1991-92. During the winter of 1981-82, which was relatively mild in regards to both temperature and snow accumulations, 66 and 237 winter kill bison carcasses were located in the Pelican and Mary Mountain winter areas respectively. Under similar winter conditions during the winter of 1988-89, 58 and 232 winter killed bison were found in the two wintering areas. Though the winter kill numbers remained essentially the same, the bison population size increased from 2,000 to 3,000 during that time. During the winter of 1991-92, a winter with a very severe beginning, 53 winter killed bison were found on the Mary Mountain winter areas with other observations indicating minimum winter mortality in other areas. Yet, between 1988-89 and 1991-92, though over 800 bison were slaughtered outside of the Park, the population increased from 3,000 to 3,400. As concluded by

productivity, and provided bison with access to additional or alternative wintering habitat both in and outside of the Park. As a consequence, Yellowstone's bison population in the fall of 1994 was nearly double the size that would naturally exist if groomed roads were not present. (Meagher et al., 1997). Consequently, the artificiality of the system is resulting in significant and severe impacts to the bison population and Yellowstone's ecology, including the slaughter and shooting of bison outside of Yellowstone's borders,[31] the functional use (i.e., the ability of bison to use the range given their feeding ecology and gregarious behavior) of bison winter and summer range, and adverse impacts to critical winter survival habitats within the geothermal areas in the Park.[32] (Meagher 1993, Meagher et al. 1997, Caslick 1997).

If such a groomed trail system were not available to bison, then winter movements would entail energy costs which are not currently being expended. In Yellowstone elk, for example, Delgiudice et al. (1991) determined through metabolite profiles in snow-urine samples, that elk on Yellowstone's northern range and in the Madison-Firehole area exhibited severe energy deprivation and accelerated degradation of lean body tissue in areas with increased elk density and/or deep snow cover.[33] If bison were subject to such energetic costs, then, depending on winter severity, this impact would be reflected in a proportional increase in natural winter kill and a decrease in survival and productivity resulting in a smaller population size. As a result, according to Meagher (1993), "long term population records accumulated over variable environmental conditions, suggested that minimum winter subpopulation numbers were...: northern range, 200-300, Pelican, 200-300, Mary Mountain, 1,000-1,400." Most importantly, "when winter conditions allowed these and larger aggregations without bison groups either breaking up or making major movements to new ranges, the bison appeared to have little environmental cause to travel." For Yellowstone bison a smaller population size would likely

Meagher (1993), "The increase of numbers but decrease in mortality under stress conditions indicated the usefulness of bison movement (on groomed roads) in alleviating effective severity of winter conditions."

[31]Arguably, individual animals from other ungulate species whose populations are artificially enhanced due to the presence and use of the groomed trail system also may suffer from these impacts as a result of hunting outside of the Park.

[32]These impacts are not associated with overgrazing as some would like to believe, but rather represent a cascading series of impacts resulting from bison feeding ecology combined with alteration in the spatial and temporal distribution, movements, and habitat use patterns of bison.

[33]While some elk utilize the groomed snowmobile roads in Yellowstone (Aune 1981), they do not utilize the roads as frequently as bison. Consequently, elk do not experience the same level of energy savings as accrued by bison.

reduce the number and rate of animals moving outside of Yellowstone where they are shot.[34]

As the Park Service's own bison expert has explained, the direct and indirect implications of the grooming of snowmobile routes on bison distribution, movement, and habitat use are substantial (Meagher 1993; Meagher et al., 1997) and extend beyond bison. In addition to providing access to new foraging sites within traditional winter use areas, groomed routes have directly, or indirectly, promoted bison emigration from the Park. As bison numbers increased due principally to the grooming of routes, "the process escalated, and bison used the energy efficient routes to move as groups from more harsh to less harsh wintering areas rather than scatter to survive as they did in the past" (Meagher 1993).

Moreover, as a result of the larger populations, habitat impacts have become substantial and have occurred ecosystem-wide. These impacts are not, contrary to the opinions of some, associated with overgrazing of the rangeland. Rather, as reported by Meagher et al., 1997:

> The skewed distribution coupled with the size of the population now is causing habitat consequences. Because the bison are free-ranging, and track high quality forage during growing season as it changes spatially across the Yellowstone landscape, the park is not experiencing overgrazing in the range management sense. But mechanical impact is occurring from increased numbers of buffalo wallows, routes, tree-rubbing, and so forth, especially in Hayden Valley." (See also Meagher, Unpublished Research Data, May 17, 1995; Included in Attachment 4).

In Meagher (Unpublished Research Data, July 22, 1994) (Included in Attachment 4), additional detail on bison use of the Hayden Valley and the implications of such use is revealed:

> Approximately 3000 bison used Hayden Valley at least briefly early in the rutting season. The habitat impact resulting from the high levels of bison activity is most obvious from the air (routes, dead stands of conifers, wallows). To borrow from the park's air operation people, the west half of Hayden Valley looks like a bombing range. Much would revert very quickly without the pressure, but the potential is increasing steadily for problems with some of the wallow sites on ridges (blowouts, gully heads) and some of the routes. The potential for exotic plant establishment in this highly-disturbed habitat cannot be over-stressed. The wooly hair of bison is ideal for transport of species such as yellow sweet clover, now rampant on the northern range, along roadsides and adjacent slopes.

[34]Although snowmobile roads may in some instances provide short-term benefits to individual animals by permitting them to access new foraging areas and otherwise decrease the energetic costs of winter travel, even such a benefit is a serious disruption of those animal's natural behaviors and role in the ecosystem. In the case of Yellowstone's bison, for example, even such short-term benefits have resulted in disaster, by increasing the number of bison beyond the level that would exist absent this intrusion into the Park's natural state contributing to the emigration and slaughter of bison beyond Yellowstone borders.

> Impacts are most striking in Hayden Valley, but are by no means confined to this one area. I cannot overemphasize the ecosystem effects occurring parkwide, albeit indirectly, from bison use of the snow-packed interior park roads in winter." (emphasis supplied)

In addition, as a consequence of the larger population sizes, their impacts to the habitat, and bison feeding ecology, the usefulness, or functional value, of winter range to bison has been lost or substantially reduced.

This loss of functional value of winter range is not due to a complete lack of available forage, but rather, is a consequence of bison evolution and feeding ecology. Evolutionarily, as large nomadic herd animals bison fed in large aggregates with little distance between herd members. Their group movements and "take-a-step-take-a-bite" feeding behavior give the habitat a "mowed" appearance. Forage is still available, but to use it, the bison would have to break social bonds and increase the distance between grazing animals. Bison, however, except when absolutely necessary for survival, prefer to maintain the aggregation by moving as a group rather than breaking social bonds and separating. The groomed routes facilitate such group movements.

An example of this loss in the functional value of traditional bison winter range is the Hayden Valley. Frequent observation of range condition in Hayden Valley showed a mowed appearance of bison use areas by fall 1992 (Meagher 1993). In December 1993 -- early in YNP's winter season -- considerably less than half of the Mary Mountain bison remained in Hayden Valley; the others having left in search of alternative wintering sites.

This and other data demonstrate that "Hayden Valley (has) lost capacity as a winter bison range because preferred foraging sites had been intensively mowed after the growing season, by early winter" (Meagher 1993). As a result "functional winter range is decreasing, further forcing groups of bison to move, or to disintegrate and scatter even earlier" (Meagher 1993).

On summer range, recent data collected on bison distribution and use demonstrate that bison move onto, forage, and move off of summer range far earlier than at any time recorded in the past. As reported by Meagher (Unpublished Research Data, May 17, 1995), the reasons and potential implications of this trend are clear:

> My judgement, based on 34 years of tracking the bison population size and distribution throughout the seasons, is that it is now making maximum use of summer range. This means that regardless of numbers, ecologically the population will remain at the upper edge of the environmental resistance... The environmental parameter that ensures this likely will continue is human-made; the presence of an energy-efficient winter road system to which the bison have adapted. Use by the bison population constitutes a range expansion, allowing many more bison to survive Yellowstone's harsh winters. Also, because the bison move from more harsh to less harsh conditions, they have learned to move to earlier green-up." (emphasis added)

Due to the temporal shift in bison use of summer range along with pressures exerted by the artificially large size of the bison population, predictably, bison began to move to traditional winter ranges earlier than had ever been recorded previously (Meagher 1993). The alteration in bison use of summer range and loss or reduction in functional winter is not limited to certain areas as it has become a problem throughout the bison range in YNP. Moreover, the implications of such impacts continue to be evident to this day (pers. comm. with Dr. Meagher).

As a consequence of bison use of routes groomed to facilitate snowmobile recreation, "many of the natural regulatory influences and ecological system feedback loops have been negated" (Meagher et al., 1997).[35] Instead, YNP's bison population is being artificially maintained at a large size, the functional winter range is quickly declining, and large numbers of bison are emigrating out of the Park.[36] As the number of emigrating bison has increased, the bison management policies of Montana, Wyoming, and the National Park Service have become less tolerant of wandering bison. The policies, though unreasonable and unnecessary, are designed to minimize the number of bison afforded an opportunity to emigrate from the Park and return alive.

Most critically, the ongoing loss of functional bison winter range -- which will encourage bison movements outside of the Park -- will result in the decline in the number of bison inhabiting YNP (pers. comm. with Dr. Mary Meagher) possibly jeopardizing the long-term integrity of this population. The continuation of the annual destruction of large numbers of bison outside of the Park, including all pregnant females, will, if such mortality is additive to other forms of mortality, facilitate this decline. As Dr. Meagher has recently observed:

> The combination of the snow density/snow water content for the first of January, couple(d) with the changes in numbers and distribution that have taken place over the past 15 years dictates that at best there will likely be considerable boundary area removal. This will be additive with a likely high mortality within the park, such has not occurred since

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[35] See also July 22, 1994 bison distribution/census flight report ("Essentially all natural death controls within the park (except for sheer old age, rutting season injuries, the occasional individual for unknown reasons) have been offset in the population by the influence of the energy-efficient winter road system... This, coupled with an increased winter forage base because of road-facilitated access has brought about the bison numbers and distribution seen on this survey. (This is not to say that wet summers and mild winters do not have a contributory role to numerical increase)").

[36] The direct and indirect impacts of bison use of the groomed routes, however, are not limited to bison or bison habitat. As explained by Meagher (1993), "the entire bison population appeared to be involved, thus involving the ecological system of which bison are a part, with implications for distribution of meat-eaters such as grizzly bears, herbivory and winter-range dynamics, and associations with other producers, consumers, and decomposers." (emphasis added)

1981-82 when the bison also really began to use the winter road system. A population crash appears likely, and the system itself that supports bison may be collapsing. No system is open-ended over time, particularly because the bison cannot expand to new winter ranges outside the park. The key in this harsh habitat is energetics, and the changes we have made to the bison energetics by providing a hard-packed energy-efficient winter road system to a stolid-tempered large ungulate." (Meagher, Unpublished Research Data, January 6, 1997 -- Included in Attachment 4).

While a prohibition on the grooming of snowmobile routes and the use of snowmobiles and snowcoaches in YNP may not stop all bison from exiting the park, the expected increase in winter kill, decrease in productivity, and decrease in calf survival would result in a natural decline in the size of the bison population. In addition, such a prohibition would ultimately remedy the ecosystem-wide implications associated with the artificially-maintained large number of bison in the Park, and may influence the dynamics of other ungulates.

Ungulates, however, are not the only animals who have learned to use groomed routes to save energy and facilitate mobility. Neumann and Merriam (1972), for example, found that red fox activity was much greater close to the snowmobile routes apparently due to the increased mobility afforded by these routes. Similarly, a survey of wolf biologists revealed that wolves also use snowmobile routes (International Wolf, 1992). Consequently, snowmobile routes have the potential to seriously disrupt the natural dynamics and ecology of ungulates, such as the bison, predator population dynamics and ecology, and predator-prey interactions.

In addition to the impacts of groomed routes and snowmobiles on the bioenergetics, survival, and behavior of wildlife, the scientific literature also reveals that snowmobile activity can influence wildlife distribution.

In Minnesota, Dorrance et al., (1975) described a significant negative correlation between the number of deer seen along a 10-kilometer trail and low intensity snowmobile use. As a consequence, Dorrance suggests that deer home range sizes may increase in the presence of snowmobiles. Rongstad (1980) reported a similar finding from a study on cottontails, where cottontail home range size increased significantly when snowmobiles were present. Conversely, Neumann and Merriam (1972) documented reduced use of habitat near snowmobile trails by snowshoe hares, but found that red fox activity was much greater close to the snowmobile trails, apparently due to the increased mobility afforded by these trails.

On the other hand, heavy and continuous snowmobile traffic may displace animals from critical habitats (Huff and Savage 1972) or travel corridors. In YNP, for example, Aune (1981) reported that occasionally heavy traffic inhibited free movement of animals across routes to preferred grazing areas and temporarily displaced wildlife from areas immediately adjacent to the routes. Similarly, Cole (1977) noted the displacement of elk along the routes during periods of fairly continuous travel by snowmobiles in the Madison and Firehole River Valleys of YNP. Even smaller prey species, such as snowshoe hares apparently avoid snowmobile routes (Neumann and

Merriam 1970). Such displacement could be equally or more detrimental than increased energetic costs caused by movements (Hobbs 1989), and may result in reduced productivity.

The Draft EIS should have provided this level of analysis but failed to do so. While some of the impacts referenced above were included in the analysis contained in the Draft EIS, that analysis was largely superficial and did not disclose or evaluate the substantial evidence in the possession of the NPS, including Dr. Meagher's information, which reveals far greater adverse impacts associated with snowmobiling and road grooming than revealed in the Draft EIS. Such a lack of disclosure and analysis is not consistent with the purpose of an EIS or the intent of NEPA.

Even more disturbing is the fact that the NPS, despite the evidence presented by Meagher and that which is documented in the scientific literature, has never altered winter use management practices, particularly route grooming practices, to restore the role of natural regulation in wildlife management in the Parks. This lack of action, as indicated, has been particularly deadly for YNP bison. There can be little dispute that YNP wildlife, particularly its ungulates, utilize the groomed routes as travel corridors. Not only are the majority of the roads constructed in lower elevation habitat which is sought out by wildlife in the winter, but the packed snow surface provides an energy efficient travel corridor during a time when energy savings are so critical to Park wildlife. This is not to say that park ungulates utilize the groomed routes as their only travel corridors since the animals also use natural passageways and animal-created trails to move within and outside of YNP. The groomed routes are used by wildlife to access alternative foraging sites in YNP.

The NPS should not ignore, as it has, the data collected by Dr. Meagher. This data set is the most comprehensive data set documenting the movements, distribution, habitat use patterns, and other features of bison ecology available for any bison population in the world. The value of these data are that they do not represent a snapshot in time, but rather provide a picture of how bison ecology has changed over time in YNP and how that change was influenced by the availability of, and bison use of, groomed routes. While Dr. Meagher continues to evaluate her 30+ years of data, many of her preliminary findings are available in published and unpublished papers some of which were referenced in the Draft EIS and others which are referenced in this comment letter. The NPS must consider this information in its ongoing analysis of the impact of snowmobiles and groomed routes on Park wildlife, particularly bison.[37] In addition, the NPS must consider and evaluate the results of bison flight data (Attachment 4) collected by Dr. Meagher and, more recently, other NPS personnel which collectively document a change in bison distribution and movements over time which is, according to Dr. Meagher, linked to the influence

[37]This information includes a recent submission to the U.S. Geological Survey by Dr. Meagher in collaboration with Dr. Mark Taper and C.L. Jerde entitled "Spatial Aspects of Bison Density Dependence in Yellowstone National Park" (Attachment 5). This report provides additional information about the significance of the winter of 1981-82 to bison use of the groomed route system, reveals that bison expand their range as their density increases, and discusses the causal link between bison density and the groomed road system.

of bison use of the groomed route system. As reported by Dr. Meagher in her November 17, 1999 comments on the Draft EIS:

> Approximately 2400 bison comprised the Yellowstone population early in the winter of 1981-82. No population use occurred west of the Firehole (this excepts the occasional wandering bull). Note also that the lands west of the Firehole did not serve historically as a wintering area (Meagher 1973). At the beginning of winter 1999-2000 numbers of bison now use lands west of the Firehole; this use by mixed groups began in the mid-1980's and increased subsequently in both numbers and time. In other words, the park is supporting the same number of bison, but with a large portion utilizing the lands west of the Firehole, and not necessarily just in winter. However, a look at a map of park snow depths as developed by Phil Farnes shows a habitat that does not provide reliable winter range. Most of the area closes out access to winter forage for bison with an average to above average winter (snow course data). This comparison indicates that bison are using less desirable habitat (from a bison perspective) because the traditional habitats used historically and prior to 1981-82 when changes began will no longer support the same numbers.

As a result, Dr. Meagher adds that "It is my professional judgement that to continue the winter use of the interior park roads as now occurs will result in driving the bison population level downward, because the bison will be removed when they exit the park, and numbers within the park will not again increase as they did between 1982 and 1994."

Instead of relying on this compelling data to substantiate changes in winter use management, the NPS has permitted or conducted additional studies to obtain more specific data on bison use of the groomed route system. While there may be some academic interest in these studies, The Fund and BLF believe that the NPS has engaged in these actions to delay the inevitable need to make difficult decisions about winter use management, and particularly snowmobile recreation in YNP. Endless studies of the winter ecology of bison which the NPS continues to promote in several of the alternatives offered in the Draft EIS will not alter the basic fact that bison use the groomed route system and that this use has altered bison distribution, movements, habitat use patterns, and population dynamics ultimately to the detriment of the population.

The results of these more recent analyses, namely the studies done by Kurz et al., (1999) and Bjornlie and Garrott (1999) do not alter this outcome. The Kurz study was the product of the temporary road closure EA and was intended to document bison use of groomed roads in relationship to snow depth, habitat, time of day, and winter weather conditions. During the winter of 1997/98 this study focused on the road segment between Fishing Bridge and Canyon (Hayden Valley). During the winter of 1998/99 the Hayden Valley study was continued while an identical study was conducted along the Mammoth to Gibbon Falls area. It is important to note that both the Kurz study and the Bjornlie and Garrott research, because of their limited duration, provide only a snapshot of the role of groomed routes in bison ecology. As a result, these studies,

unlike the research done by Meagher, do not and cannot evaluate the impact of the historical use of groomed trails by bison and how that may have influenced more current findings. Although both studies concluded that bison use of groomed roads is limited, this determination is not terribly meaningful because of historical affects, learned behavior by bison, sampling flaws, the lack of any control groups, and the limited duration of the studies. Consequently, neither of these studies should be given the same weight nor relied on as extensively as the research conducted by Meagher.

This is not to say that the studies do not provide interesting information. The Kurz study, for example, found that bison use of groomed routes increased as winter severity increased. While Kurz et al., documented proportionately little bison use of the groomed roads in their study sites (5.8 % of observation in Mammoth and 9.4 % of observation in Hayden Valley during the winter of 1998/99) these observation were done randomly during the daylight and crepuscular periods when, as Kurz et al., concede "bison activity is concentrated primarily on feeding, resting, or a combination of those activities." If bison are primarily feeding and/or resting when surveys are conducted to determine if they are using the groomed roads then the limited observations of bison on groomed roads is entirely predictable. Under such circumstances, the fact that they observed as much bison activity on groomed routes as they did is quite remarkable. Similarly, the lack of bison observations on groomed roads by NPS employees who groom the snowmobile routes at night is also not surprising because bison may exit the route before the groomer arrives and then return to the route after the groomer departs. Because the total amount of time spent observing bison was likely very limited during this study, a substantial proportion of bison use of groomed trails may have been missed. The fact that 100% of the bison groups observed in the Hayden Valley study area were on or within 25 meters of the groomed road surface indicating that the bison had easy access to the groomed route if they desired to use it and that the presence of snowmobiles, including the researchers' own machines, may have influenced bison use of groomed routes.[38]

Unlike the Kurz study which was done internally by the NPS, the Bjornlie and Garrott study was funded by the U.S. Geological Survey and, thus, was subject to peer review before it was initiated. In short, the peer review report by Drs. William Gasaway and Francois Messier (Studies of Bison Ecology and Brucellosis in the Greater Yellowstone Ecosystem: An Independent Review) concluded that even after the completion of this study "there still will be little knowledge on the influence of groomed roads on bison population dynamics and range use." In addition, the reviewers stated that "the interpretation of results in terms of significance to the population will be subjective and the controversy will remain." These conclusions were primarily due to the lack of a control group of bison for comparative purposes. The reviewers suggested a number of alternative approaches which could be considered to generate additional data from the

[38]As described previously, though the stolid temperament of bison facilitates their use of groomed routes in the presence of snowmobiles, both Aune (1981) and Meagher (1993) reported that some bison flee from snowmobiles and that bison modified their movement patterns by increasing their use of groomed trails at night.

study, including limiting the study to the simple question of whether groomed roads act as attractants to bison, but it does not appear that any of these suggestions were incorporated into the study design. As a result, the conclusion of the peer reviewers that they "are not optimistic that this study will contribute substantially to resolution of the controversy over the effects of road grooming on bison demography and space use," remains valid.

Despite these deficiencies, Bjornlie and Garrott conducted their study during the winter of 1997-98 and 1998-99 on different study sites than those used by Kurz. Like Kurz, however, Bjornlie and Garrott also found relatively limited use of groomed routes by bison but they did document use and that use increased in 1998-99 compared to 1997-98. Though they indicate that there was no statistical correlation between bison use of groomed roads and snow-water equivalents, the winter of 1998-99 was more severe than the previous winter. Bison use of roads within the study area was greatest during later November and early December and then peaked again in April when roads were relatively if not entirely free of snow. Bison use of groomed roads was also documented. This pattern of use, though it may not accurately depict the extent of bison use of the groomed route system for reasons provided below, is predictable since the alleged peak in use corresponded to time periods when human activities in YNP, including human use of the roads, was limited. In addition, Bjornlie and Garrott documented that approximately 60 percent of bison/snowmobile interactions were negative, potentially resulting in increased energy use in excess of any energy savings associated with bison use of groomed roads. Even if this finding is accurate, it provides additional evidence that snowmobile use results in the disturbance and harassment of bison in violation of NPS regulations and policies.

The accuracy of the findings by Bjornlie and Garrott are subject to question. Not only is no control available for comparative purposes, but the study has many of the potential flaws identified in the review of the Kurz study. For example, though the researchers who participated or assisted in the Bjornlie and Garrott study may have covered over 40,000 kilometers during the study, it's unclear how much time was actually spent observing bison groups. It certainly is possible that the researchers underestimated the proportion of bison who may use the groomed trail system because they could not spend entire days observing bison groups. Similarly, depending on the times when the researchers sought out bison, they may have encountered bison, as Kurz did, when the animals were actively feeding or resting instead of traveling. The fact that they examined the freshly groomed trail surface for bison tracks in the early morning prior to the rush of recreational snowmobiles may not be a useful indicator of bison use of the groomed trails at night since it is unclear how easy it is to find and identify bison tracks on the groomed route surface.

In addition, the pattern of bison use found by Bjornlie and Garrott may reflect the historical impact of bison use of groomed routes on their distribution and movement patterns. In other words, because bison have utilized the groomed route system for nearly 20 years according to Meagher's research, their distribution, movements, and use of groomed routes may be very different today than they were in the 1980s and early 1990s. The fact that bison use of groomed routes peaked in November and early December may be indicative of such a historical influence

on bison ecology. Thus, the findings of Bjornlie and Garrott may reflect bison use of groomed trails during their study, but it may not accurately reflect the extent of past use which would suggest that the damage to natural processes, including the natural dynamics of the YNP bison population may have already occurred.

Finally, the NPS should disregard the analysis of bison use of groomed routes contained in the 1998 National Academy of Sciences report on Brucellosis in the Greater Yellowstone Area because the analysis is woefully inadequate and reflects a gross misunderstanding of the complex ecology of the Park and its bison and, most importantly, the direct and indirect effects of groomed trails on bison movements, distribution, habitat use, and population dynamics. The NAS assessment is fundamentally flawed because it assumes that the alleged constant rate of incremental change in the bison population over time – both before and after bison began to use the trails -- demonstrates that the trails assert no substantial influence on bison demographics. In reality, when these same data are evaluated over shorter increments of time, and in relationship with other variables -- including winter climate, the impacts of routes on bison behavior, bison feeding ecology, bison population size in relation to habitat availability, and the increase in bison winter habitat within Yellowstone resulting from bison use of the trail system -- it becomes readily apparent that the groomed trails have caused and continue to cause substantial changes in bison demographics. Indeed, the rate of growth in the bison herd, its expansion beyond Park boundaries, the increased proportion of adult bison in the herd, and the constant rate of annual incremental change is, contrary to the NAS's conclusion, primarily attributable to bison use of groomed trails. Finally, without a control group for comparative purposes, the entire foundation of the NAS argument is flawed, because it is based on the ludicrous and wholly unsubstantiated presumption that the bison demographics would not have been different even if trails were never groomed in the Park.

6. The evaluation of winter use impacts to threatened and endangered species in the Draft EIS inadequate:

The analysis of potential adverse impacts of winter recreation, particularly the direct, indirect, and cumulative impacts of snowmobiling, snowcoach use, and road grooming, on threatened and endangered species is blatantly incomplete. In particular, The Fund and BLF are concerned about the adverse impacts of winter use activities, particularly snowmobile recreation, on the threatened grizzly bear, gray wolves, the soon-to-be listed lynx, and the wolverine. A more complete analysis is provided below.[39] This analysis must be considered by the NPS as it

[39]This analysis was previously provided to the NPS in the 1997 report submitted by several organizations, including The Fund, entitled "Adverse Effects of Trail Grooming and Snowmobile Use on Winter Use Management in the Greater Yellowstone Area with a Special Emphasis on Yellowstone National Park," and in the 1999 "Petition to Prohibit Snowmobiling and Road Grooming in National Parks." These documents were previously reference in this comment letter and are appended as Attachments 1 and 2. This analysis has been slightly modified through the inclusion of additional information about the adverse impact of

continues the EIS process and in its preparation of a biological assessment as part of formal consultation with the U.S. Fish and Wildlife Service as required by the Endangered Species Act and the Settlement Agreement.[40]

Grizzly Bear:

While direct snowmobile impacts on grizzlies are limited due to grizzly denning during the peak period of snowmobile use, it is now clear that indirect impacts may adversely affect grizzlies in the Parks. Indirect impacts result from the altered distribution and movement patterns of large ungulates, particularly bison and elk, caused by snowmobile trail use and the consequent availability and accessibility of carrion.[41]

For grizzlies, winter-killed carrion is "an important source of protein" during the crucial bear feeding time in the late winter and early spring after den emergence (1990 Winter Use Plan and Environmental Assessment (WUPEA) at 15; Knight et al., 1984). The importance of carrion is dependent upon the sex and age of the bear. As stated in the WUPEA:

> Adult females and young grizzlies, especially, need carrion and suffer most from its exclusion from their diet. The viability of the Yellowstone grizzly is contingent on the survival of adult females. The females, unlike adult males, constantly experience an ongoing energy crisis related to weights, mortality, and fecundity. When adult females are excluded on a regular basis from carrion sources, higher mortality and lower fecundity rates can be expected." (WUPEA at 15) (emphasis added).

Further support for the importance of ungulate carrion for Yellowstone's grizzlies was provided by Mattson and Henry (1987) who stated that:

> Spring grizzly bear habitat productivity in Yellowstone is a function primarily of ungulate availability (Knight et al. 1984). Spring productivity in turn apparently plays a major role

snowmobiling on lynx.

[40]It also should be noted that the settlement agreement requires the NPS to prepare a biological assessment and to request formal consultation with the U.S. Fish and Wildlife Service. Settlement Agreement at 5. In addition, as a reminder, the NPS must make its biological assessment available to the public upon completion. Id. Since the NPS has not released its assessment, it is assumed that the assessment has not been completed.

[41]Air pollution impacts to Park vegetation may be another indirect affect of snowmobile use on grizzlies. These impacts may affect all components of the food chain, including grizzly bears and other threatened and endangered species, as a result of bioaccumulation of toxins in Park herbivores (See Shaver et al., 1988). In the Parks, however, little research into such affects has been conducted.

> in determining productivity, condition, and ultimately survivorship of adult female grizzlies in the Yellowstone areas. Knight and Eberhardt (1985) have identified female survivorship as key to the future viability of the Yellowstone grizzly bear population. Thus, over-winter ungulate mortality and condition are identified as an important regulatory factor, and an area where management might potentially benefit the Yellowstone grizzly bear population." (emphasis added).

The importance of carrion to grizzly bears is indisputably linked to bio-energetics. Mattson (1997) has reported that "energy from ungulate meat potentially provided approximately 70 and 56 percent of total energetic costs" (emphasis added) for male and female grizzlies, respectively. Most of this energy (95%) "was estimated to come from the largest-bodied ungulates species (elk, bison, and moose), with greatest proportional contributions by scavenged adult male bison (16%), scavenged calf and yearling elk (10%) and adult female elk that were killed (8%) or scavenged (8%)." (emphasis added) Id. Overall, moose and bison contributed to the grizzly bear diet "far in excess of their relative numbers in grizzly bear range." (emphasis added) Id. In fact, as noted by Mattson and Knight (1992), "adult bison carcasses were used proportionally more often (92% of those available) than any other type of carcass, and adult elk least often (38% of available)." (emphasis added). Of the bison carcasses, adult female bison "were the most consistently and heavily scavenged by grizzly bears." (emphasis added) Id. Thus, not only is carrion critically important to meet the energy needs of grizzlies, but a substantial amount of the carrion consumed is bison.

The availability and use of carrion, particularly bison, by grizzly bears, therefore, is of critical importance for species survival and viability. Considering the decline or variability in other important grizzly food items, including the army cutworm moth, cutthroat trout, and whitebark pine nuts, the relative importance of carrion as a spring food source for grizzly bears has increased (Gunther and Haroldson 1997). The Draft EIS refers to these principal grizzly food sources, but failed to sufficiently explain the significance of these food sources for grizzly bears or to analyze the cumulative impact of all of the factors influencing the abundance and availability of these foods, including the slaughter of bison outside YNP, the impact of disease on whitebark pine nuts, and the impact of lake trout and whirling disease on the cutthroat trout. Furthermore, the Draft EIS failed to disclose or evaluate the impact of human activities, including snowmobiling, on the availability and accessibility of carrion.

The scientific evidence reveals that grizzlies avoid humans using roads and developments even when carrion is available in those corridors (YNP/GTNP/JDRP1990). More specifically, Green and Mattson (1988) reported that carcasses 1.5 km away from active roads in Yellowstone were used more significantly than carcasses within 1.5 km of roads, while Henry and Mattson (1988) reported that carcass use by grizzlies within 400 meters of the Old Faithful-Madison Junction highway was significantly less than use beyond 400 meters (see also Mattson and Knight 1992). The potential implications for grizzly survival and viability associated with carrion availability and use are even more critical given that nearly half of the carcasses are located within 400 meters, and the majority (60 percent), within 1 kilometer of a road (Green et al., 1997).

Similarly, near human developments, Henry and Mattson (1988) reported that bear use of available carrion was significantly less within 5 km of Old Faithful with only 6-7% of available carcasses used verses 50-100% of available carcasses used beyond 5 km (see also Mattson and Knight 1992).

The negative correlation between carrion use and proximity to roads and developments is of critical importance to bear survival and viability given that most spring carrion in Yellowstone occurs on ungulate winter ranges that are located at lower elevations, near roads and developments (Houston 1982). The prevalence of carrion near roads is also undeniably influenced by ungulate (particularly bison) use of groomed snowmobile roads as travel corridors. The groomed roads, therefore, not only alter the natural distribution and movement patterns of bison and other ungulates, but also affect grizzly bear access to carrion, potentially resulting in reduced bear productivity and survival.[42] Indeed, in Yellowstone, the increased migration of bison out of Yellowstone in winter through use of the groomed routes and the subsequent killing of these animals through management actions is resulting in less carrion being accessible to grizzlies upon emergence from dens. As a result, snowmobile use on designated routes in areas occupied by grizzly bears may be resulting in a "take" of these animals in violation of the Endangered Species Act, 16 U.S.C. § 1538.

Gray Wolf

Wolves are also impacted by snowmobiling and snowmobile routes (International Wolf 1992). Like ungulates, deep snow can hinder the movements of wolves. However, because wolves have a lighter foot load than most ungulates (Telfer and Kelsall 1984), they are better able to move across snow in search of prey.

Snow depth greatly affects predator-prey interactions. Huggard (1993) documented an increase in kill rate by wolves in Banff National Park in Canada ranging from 1 ungulate/5.4 days with no snow to 1 ungulate/1.1 days in snow 60 cm deep (See also Nelson and Mech 1986). The composition of the kill also increased with a larger proportion of calves taken at intermediate snow depth and more adults killed at deeper snow depths. Snow depth influences the vulnerability of ungulates to predation by creating a physical impairment to escape (Nelson and Mech 1986), by reducing ungulate fat reserves due to increased energetic needs to travel through snow (Mattfeld 1974, Parker et al. 1984), and by restricting forage intake (Ozoga and Verme 1970). Thus, as reported by Nelson and Mech (1986), the cumulative effect of this energy drain, especially in late winter, decreases deer physical condition and predisposes them to wolf predation.

Since wolf survival and production is affected by winter food intake, the availability and

[42]Grizzly avoidance of ungulate carcasses near roads may also cause artificial alterations to grizzly movements, distribution, and predator/prey interactions in conflict with NPS grizzly bear management policies, possibly leading to greater human grizzly conflict.

accessibility of prey in winter affects wolf numbers (Nelson and Mech 1986). Snowmobile routes, whether created by snowmobiles or grooming equipment, may adversely alter predator-prey dynamics, habitat use, predator and ungulate movement and distribution patterns, thereby affecting the availability and accessibility[43] of prey to predators, and also affecting community structure and composition (Paquet et al. 1997). These routes can also facilitate predator expansion into areas where they are more likely to have negative interactions with humans, pets, and cattle.

For example, Paquet et. al (1997) compared wolf use of modified routes (i.e. plowed roads, snowmobile routes, and ski trails) to natural trails (i.e. trails made by wildlife) in several national and provincial parks in Canada. Their data reveals that "wolves ... clearly preferred established travel routes (modified routes) composed of compacted snow, snow free roads, and open areas of shallow snow." Wolves also used human-modified routes in the winter to cross or traverse upper elevation areas where normally such movements would be precluded due to excessive snow depth.

Similarly, wolves have difficulty moving in snow deeper than 50 cm (Pullianen 1982). Consequently, in Parks like Yellowstone where wolves are present and snow depth in some areas may exceed 50 cm, wolf movements and use of these areas may be precluded by snow depth. Similarly, elk are generally restricted in distribution by snow depths greater than 46 cm (Beall 1974, Leege and Hickey 1977, Adams 1982). If modified or groomed routes traverse these areas, however, they provide energy and movement efficient travel corridors for wolves and elk to access habitats that otherwise would not have been available. Such an effect, as Paquet et al. (1997) reports, could have unanticipated consequences, including: the modification of wolf predation by facilitating movements between patches of prey; changing the relationship between habitat use, prey distribution, and topography; altering dispersal patterns; and facilitating access to winter ungulate ranges or agricultural areas which would normally be unavailable.

Excessive snowmobile use may also displace wolves, grizzly bears, and other species from critical habitats (Huff and Savage 1972; International Wolf 1992), travel corridors, and den sites. Purves et al., (1992), for example, documented grizzly bear and gray wolf habitat use and displacement in Banff, Yoho, and Kootenay National Parks in Canada, and concluded that wolves showed aversion to regions where winter human use exceeded 10,000 visitors per month. This level of use is easily exceeded in several Parks, including Yellowstone, Grand Teton, and

[43]Since prey are more easily killed by predators in deeper snow, ungulate use of snowmobile routes to access and use alternative wintering sites at lower elevation and with less snow, may adversely impact the ability and efficiency of wolves to kill wild prey to meet their nutritional requirements. In turn, wolves may alter their movements to correspond to changes in ungulate movements, and/or may pursue alternative prey, including domestic livestock.

Voyageurs where wolves are known to exist and snowmobiling is permitted.[44] Snowmobile disturbance has also been determined to cause den abandonment (Stephenson 1974, Carbyn 1974). Moreover, Aune (1981) found no evidence of wolf, wolverine, or mountain lion activity in his study of winter recreation impacts on wildlife. However, given the abundance of sufficient prey and carrion in the area, Aune theorized that "winter recreation activity may prevent occupation of critical habitat for such species due to a lack of needed isolation." (emphasis added).

Lynx:

Lynx, a species which the Fish and Wildlife Service recently proposed to list as threatened, is also adversely affected by snowmobile use. According to the proposed rule (63 Fed. Reg. 36993):

> Snowmobile use in the Great Lakes and Rocky Mountain/Cascades regions has resulted in an increase in both human presence and the prevalence of packed snow corridors in lynx habitat. The increased snowmobile use and the increased area in which snowmobiles are used likely diminished habitat quality for lynx, and also decreases the lynx's competitive advantage in deep snow. This results in an increased threat posed by competitors, as a result of the increase in hard-packed snow routes.

Koehler and Aubry (1994), for example, determined that inter-specific competition during late winter, a time when lynx are already nutritionally stressed, may be especially detrimental to lynx.[45] Snowmobile routes and roads that are maintained for winter recreation enable coyotes and bobcats to access lynx winter habitat (Koehler and Aubry 1994). Consequently, the presence of snowmobiles and snowmobile routes on public lands occupied by lynx are likely to adversely impact the survival and viability of such populations.

Human disturbance can also adversely impact Canada lynx survival and habitat use. Again the proposed rule to list the lynx as a threatened species states that:

> Elevated levels of human access into forests are a significant threat to Canada lynx because they increase the likelihood of lynx encountering people, which may result in displacement of lynx from their habitats and/or possible injuries or deaths by intentional or unintentional shooting, trapping, and vehicle accidents (Hatler 1988, Thiel 1987, Brittell et al. 1989, Koehler and Brittell 1990, Brocke et al. 1991, Washington Department of Natural Resources 1996, Brocke et al. 1993). Human access into Canada lynx habitat in many areas has increased over the last several decades because of increasing human populations and increased construction of roads and trails and the growing popularity of snowmobiles and off-road vehicles. In the interior Columbia River basin of Washington, Oregon, Idaho, and Montana, increased human access has decreased the availability of areas with low human activities, which are important to forest carnivores, including lynx (U.S. Forest Service and Bureau of Land Management 1997). 63 FR 37005.

Wolverines:

Though not presently listed under the ESA, the wolverine is a species designated as sensitive on many forests, which is deserving of federal listing, and which is adversely impacted by human disturbance, including snowmobile use. Copeland (1996), for example, reported that human disturbance results in den abandonment by wolverines (Myrberet 1968). Indeed, in his research in Idaho, Copeland (1996) determined that as a result of displacement and disturbance of denning female wolverines by winter recreational activities, denning habitat may be a limited and critical component of wolverine habitat. Technological advances in over-snow vehicles and increased interest in winter recreation has likely displaced wolverines from potential denning habitat, including in subalpine cirque areas, and may continue to threaten this limited resource (Copeland 1996).[46] In addition, like grizzly bears, wolverines rely on ungulate carrion as a primary food item and, therefore, activities that decrease large ungulate populations (i.e., excessive hunter harvest, displacement of ungulate populations due to excessive timber harvest and urbanization, loss of ungulate wintering areas) or make ungulate carrion less available or accessible may negatively affect wolverines (Copeland 1996).

The Draft EIS does not disclose many of the impacts, particularly the indirect and cumulative impacts of snowmobiling and trail grooming on imperilled species, summarized above.

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[44]In Voyageurs National Park, research has demonstrated that gray wolf activity in specific bays appears to occur when snowmobiles are not present (DOI/VNP1996). The report concludes that, "A biological interpretation of these results indicate wolves tend to avoid snowmobile activity in restricted use areas. It is reasonable to assume that a disturbance-threshold exists where repeated avoidance by or displacement of an animal may result in: (1) more permanent replacement of the wolf or wolves; (2) impact on an individual animal's winter energy budget as to adversely affect productivity or survival; or (3) conditioning the animal to avoid certain areas.

[45]Canada lynx may be displaced or eliminated when competitors (e.g., bobcat, coyote) expand into its range (deVos and Matel 1952, Parker et al. 1983, Quinn and Parker 1987). The Canada lynx is at a competitive disadvantage against those other species because it is a specialized predator, whereas bobcat and coyotes are generalists that are able to feed on a wide variety of prey. Historically, bobcat and coyotes have not been able to compete with lynx in areas that receive deep snow, where lynx are much more highly adapted (McCord and Cardoza 1982, Parker et al. 1983, Quinn and Parker 1987). When snowmobile routes are available, coyotes and bobcats, can exert a greater impact on snowshoe hare populations -- the predominant prey of the lynx -- than if snowmobile routes were not available (Murray and Boutin 1991).

[46]In addition, high road densities, timber sales, or housing developments on the fringes of subalpine habitats may reduce the potential for winter foraging and kit rearing and increase the probability of human-caused wolverine mortality (Copeland 1996).

Instead, the NPS has inexplicably downplayed or ignored these serious impacts. Failing to disclose or evaluate such data in the Draft EIS is not consistent with the analysis required in an EIS by NEPA.

7. **The Draft EIS does not adequately evaluate the seriousness of the impacts of snowmobile emissions on air and water quality:**

The Draft includes information about the impacts of snowmobile emissions on air and water quality in the Parks. This information is a product of many studies undertaken in the Parks or funded by the NPS to determine the extent, severity, and impact of snowmobile emissions on the Parks, park employees, and park visitors. An additional report summarizing many of these studies was released during the public comment period and provides compelling evidence of the serious impact of snowmobile emissions on the Parks. See Flores and Maniero 1999. The Fund and BLF believe, however, that neither the Flores/Maniero report or the Draft EIS adequately or comprehensively evaluate the severity of snowmobile emissions in the Parks or their impacts on Park features, particularly aquatic ecosystems and species. Indeed, while the amount of emissions generated by snowmobiles as disclosed in the Draft EIS and the Flores/Maniero report are substantial and compelling, The Fund and BLF believe that the NPS underestimates the amount of pollution being generated by snowmobiles in the Parks.

The following information, which represents a more comprehensive analysis of potential pollution impacts -- the type of analysis which should have been included in the Draft EIS -- was taken from the 1999 Bluewater Network Petition to Prohibit Snowmobiling and Road Grooming in National Parks (Attachment 2). This information has been augmented with additional information which provides more evidence of the potential impact of snowmobile emissions on Park resources.

Pollution is yet another adverse impact attributable to ORV operation. The majority of ORVs, including motorcycles, snowmobiles, and ATVs, use 2-stroke engines which are highly polluting (White et al. 1993, Fritsch 1994). According to the Environmental Protection Agency, small engines account for 5 percent of total air pollution, with a significant proportion of this pollution being generated by ORVs along with motor boats, chain saws, and lawn mowers (Fritsch 1994).

The operation of two-stroke engines create dangerous levels of airborne toxins including nitrogen oxides, carbon monoxide, ozone, particulate matter, aldehydes, 1,3 butadiene, benzenes, and extremely persistent polycyclic aromatic hydrocarbons (PAH). Several of these compounds are listed as "known" or "probable" human carcinogens by the EPA. Benzene, for instance, is a "known" human carcinogen and several aldehydes including butadiene are classified as "probable human carcinogens." All are believed to cause deleterious health effects in humans and animals well short of fatal doses (EPA 1993). In addition, two-stroke engines also discharge 25-30% of their fuel mixture, unburned, directly into the environment (Kolman et al. 1973). Unburned fuel contains many toxic compounds including benzene, toluene, xylene and the extremely persistent

suspected human carcinogen Methyl Tertiary Butyl Ether (MTBE).

Noxious Air Emissions:

Snowmobiles destroy air quality in areas where they are used. Even a small group of snowmobiles can produce extremely high levels of pollution. According to emissions data from the California Air Resources Board (see, http://www.arb.ca.gov [1/5/99]), one hour on a two-stroke engine used by most snowmobiles and jet skis, produces more smog-forming pollution than a modern car creates in one year. A recent report on air quality in Yellowstone National Park (Flores and Maniero 1999) determined that snowmobiles were responsible for nearly all of the air pollution in Yellowstone National Park. The amount of air pollution, generated by the highly polluting 2-stroke engines which power most snowmobiles, is excessive. According to the Park Service study, on a peak day when 2000 snowmobiles enter the Park, 32 tons of hydrocarbons and 88 tons of carbon monoxide are emitted. Over the course of an entire winter, when more than 60,000 snowmobiles enter the Park, that adds up to 1,200 tons of hydrocarbons and 2,400 tons of carbon monoxide. During one winter, snowmobiles emit 78 percent of all carbon monoxide and 94 percent of all hydrocarbons released during the entire year, even though cars and other vehicles vastly outnumber snowmobiles.

Dangerous levels of carbon monoxide (CO) and particulate matter (PM) are a primary concern. CO is extremely dangerous to humans (discussed below), and particulate matter is a recently confirmed human carcinogen by the Environmental Protection Agency. Snowmobiles emit dangerously high levels of carbon monoxide. A study conducted for the National Park Service in 1997 concluded that a single snowmobile produces 500-1000 times more carbon monoxide than a 1988 passenger car (Fussell-Snook 1997).[47]

Due to the popularity and proliferation of snowmobile use in West Yellowstone, the Park Service conducted air quality studies under various conditions at the West Entrance. The park used stationary and mobile testing apparati in 1995 and 1996, focusing on carbon monoxide (CO) and particulate matter concentrations at ground level. Preliminary results indicate that CO levels exceed federal and state ambient air quality standards at certain times.[48] In fact, a reading of 36 ppm in 1996 was the highest concentration recorded for CO nationwide, including cities with notoriously high CO levels such as Los Angeles and Denver. Results from both years

[47]Notably, comparisons to a current model-year passenger vehicle would increase this figure significantly. Some modern cars emit only .12 grams/kW-hr as compared to CARB estimates of 1078 grams/kW-hr for snowmobiles. As a result, some snowmobiles produce almost 9,000 times more carbon monoxide during a given period than a modern car.

[48]Federal standards for CO are 35 and 9 parts per million for a one and eight hour average, respectively, 40 CFR § 50.8(a)(1)(2). State standards differ for Montana and Wyoming. In Montana, the CO standards are 23 and 9 ppm for the 1 and 8 hour averages, respectively, while Wyoming's standards are identical to those of the federal government.

demonstrate a positive correlation between snowmobile density and high CO levels.

Carbon monoxide impacts on human health:

Pollutants generated by snowmobiles not only contain dangerous levels of airborne toxins, but can lead to the formation of additional ground level ozone from the photochemical reaction of released nitrogen and hydrocarbons. Health risks associated with exposure to smog and nitrogen include respiratory complications such as coughing, chest pain, heart problems, asthma, concentration lapses and shortness of breath. Elderly individuals and children are particularly sensitive to ground level ozone and nitrogen.

In Yellowstone National Park studies of snowmobile emissions found that CO and PM concentrations were high enough to cause health and air quality concerns in West Yellowstone, along the snowmobile trail to Old Faithful, and in the parking log at Old Faithful (National Park Service, Air Quality Division 1995). In addition to adverse pollution impacts on visitors, Yellowstone has been forced to enclose and pump air into ranger booths at its West Entrance to protect rangers from dizziness, nausea, fatigue, headaches, and breathing problems.

Carbon monoxide is also dangerous because it binds to the hemoglobin in blood (forming carboxyhemoglobin) and renders hemoglobin incapable of transporting oxygen (Fussell-Snook 1997). Elevated levels of carboxyhemoglobin can cause neural-behavioral effects at low levels (2-3 percent), headaches and fatigue (10 percent), and respiratory failure and death at higher levels. And the general consensus among medical professionals is that the health risk from CO increases at high altitude -- a risk exacerbated by richer fuel mixtures common at higher elevations. CO is particularly hazardous during pregnancy, and to the elderly, children, and individuals with asthma, anemia or other cardiovascular disease (EPA 1991, 1994).[49] The National Ambient Air Quality Standards for CO of 35 ppm for 1 hour and 9 ppm for 8 hours were established to keep blood levels of carboxyhemoglobin below 3 percent. Notably, some scientists have criticized these standards because of evidence of adverse health effects even at these levels (Watson 1995, Greek and Dorweiler 1990).

Snowmobilers, rangers and other park visitors are exposed to dangerous levels of CO. In Grand Teton National Park, Fussell-Snook (1997) measured the amount of CO emitted from a snowmobile on a Park trail under steady-state conditions.[50] An average of 9.9 g/mile (99 g/hr) to 19.9 g/mile (795 g/hr) of CO was emitted by one snowmobile traveling from 10 to 40 mph. By comparison, an automobile emits 0.01 to 0.04 g/mile of CO under steady-state conditions, or approximately 1,000 times less than a snowmobile. The average CO measurements for a single

[49]For a summary of the human health effects of snowmobile pollutants, including carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter, see EPA (1994).

[50]Snowmobiles emit more pollutants when accelerating. The steady-state conditions in this study, therefore, represent a "best case" emission volume (Fussell-Snook 1997).

snowmobile, recorded at different speeds and distances (25-125 feet), ranged from 0.5 - 23.1 ppm. The Montana state one-hour human exposure limit for carbon monoxide is 23 ppm.

It is important to reemphasize that these measurements were based on a single snowmobile only, during steady-state conditions. Unfortunately, snowmobiles travel in packs of 2-25 units for sustained periods of time, and often accelerate over hills and banks. It is therefore clear that typical human exposure to CO is of a much greater magnitude, and represents a very significant level of toxic pollution.[51]

Pollution impacts on aquatic and terrestrial species:

Pollution emitted by snowmobiles or other off-road vehicles can result in severe direct, indirect, and cumulative impacts on aquatic and terrestrial species. As a result of direct deposition of unburned fuel into soil, snow, or water or atmospheric deposition of airborne pollutants, the impact is not limited to the snowmobile routes but, rather, are far-reaching. For example, the increased ground level smog and nitrogen concentrations mentioned above cause acid rain, acid snow, and water pollution. Direct impacts include alteration of soil and snowpack chemistries as a result of direct and atmospheric pollutants. Indirect effects include impacts to vegetation and the aquatic system which can result in adverse consequences to the varied assemblage of animals which occupy polluted sites.

The direct deposition of unburned fuel into the environment represents a substantial impact caused by snowmobiles nationwide. As previously explained, two-stroke engines release 25 percent of their fuel unburned into the environment. Collectively, considering the number of snowmobiles using the Parks this represents a substantial amount of pollution. In Yellowstone National Park, for example, of the 220,000 gallons of gasoline and 11,000 gallons of lubrication oil sold for snowmobiling by service stations in 1995, up to 55,000 gallons of fuel and 2,700 gallons of motor oil entered the environment as unburned, raw petrochemical pollution.[52]

If snowmobile routes are constructed near rivers, lakes, and streams -- as many are -- this amount of pollution poses a serious threat to these aquatic systems. Even if routes are constructed away from such sensitive areas, pollution remains a threat. Unburned fuel, for example, deposited on soil may bind with soil chemicals potentially resulting in adverse impacts on vegetation, could percolate into underground water supplies, and/or could be washed into the aquatic system by runoff. Similarly, if pollutants are deposited in the snowpack, the spring thaw

[51]In addition, the impact of CO exposure increases with increasing altitude, especially for unacclimated individuals (National Commission on Air Quality 1980). Thus, because much snowmobile use occurs at higher altitudes, risks to human health are even greater.

[52]Gasoline sales reported by the Montana Department of Environmental Quality in a report by Howard E. Haines. Raw fuel emissions are calculated using EPA data which confirms that 25% of the fuel "consumed" by a two-stroke engine is emitted "out the tailpipe" unburned.

will flush these toxins into the aquatic system and/or the soil will impacted thereby potentially affecting vegetation growth, abundance, and composition.

In Yellowstone, toxic raw fuel and air emissions accumulate in the snowpack along rivers, streams and lakes where snowmobile routes are most common. Ingersoll et al. (1997) found increased levels of sulfates and ammonium in Yellowstone's snowpack compared to baseline conditions.[53] Pollutants "locked" in the snowpack are released very rapidly during the first few days of snow melt. Researchers have found that 80 percent of acid concentrates are released in the first 20 percent of snowmelt, and that this acid pulse is a major cause of death for aquatic insects and amphibians (Rawlins 1993, Hagen and Langeland 1973). This acid pulse may also reduce the acid neutralizing capacity of aquatic systems, particularly those found at high elevations which typically are less capable of neutralizing acid deposition.[54] In one study, Charette et al. (1990) determined that "during the spring melting, the massive liberation of atmospheric pollutants accumulated in the snow cover is connected to a very important increase of acidity, which may be more than 100 times higher than the usual acidity level in surface water."

Several studies have determined that the survival, productivity, and distribution of amphibians is drastically impacted by increasing acidity (See e.g., Gosner and Black 1957, Cooke and Frazier 1976, Beebee and Griffin 1977, Saber and Dunson 1978, Freda and Dunson 1985). Kiesecker (1991), for example, found that 60-100 percent of tiger salamander eggs were dead or unviable in ponds at pH 5.0 or less, 40 percent were dead or unviable at pH levels between 5 and 6, and 20 percent were dead or unviable in water with a pH above 6.0. At pH levels below 6.0, a slower hatching rate, slower growth to maturity, and a decreased ability of tiger salamanders to catch and eat tadpoles was observed. Pierce and Wooten (1992) also documented sublethal effects of lowered Ph on amphibians (e.g., slower growth of larvae) above the levels that kill embryos. Increased acidity also may cause amphibians to avoid breeding in low pH ponds (Beebee and Griffin 1977).

The acidity of water also affected the survival of tiger salamanders. Harte and Hoffman (1989), studies a declining tiger salamander population in an acid-sensitive watershed in the Colorado Rockies. As a result of their research they concluded that less than half as many tiger salamander embryos survived at about pH 5.6 or less compared to those surviving at about pH

[53]Research in the Sierra Nevada in California and the Colorado Rockies has shown that a temporary depression of surface-water pH and alkalinity and a simultaneous increase in sulfate and nitrate levels occur following spring snowmelt (Blanchard et al. 1987).

[54]Studies conducted in Yellowstone revealed that "many lakes and streams in Yellowstone are susceptible to acidification by atmospheric deposition" (National Park Service 1983). Similarly, in the Forest Service's Eastside Ecosystem Management Project, it was determined that concentrations of air pollutants in the snowpack "are greatest in Wyoming and in a small area within Montana just west of Yellowstone National Park. Some of the largest concentrations of sulfate, nitrate, and acidity were measured at sites near Yellowstone." (USFS 1996).

6.1 or greater and that survival of zooplankton, a common food of the tiger salamander, was also drastically affected by increased acidity. Furthermore, they found that only a brief exposure to acid is needed to induce amphibian mortality, that acidified water resulted in developmental abnormalities, and concluded that episodic acidification may have contributed to the salamander population decline.[55] Based on their results, Harte and Hoffman (1989) theorized that there are at least five possible mechanisms by which episodic acidification might reduce the salamander population. It might (1) inhibit egg development, (2) exert a direct toxic effect upon the hatchlings, (3) exert a direct toxic effect upon the adult population, (4) inhibit reproductive activity, (5) damage the food chain (See also, Schindler et al. 1985). Other amphibians, including boreal toads, chorus frogs, and northern leopard frogs also experience significant mortality when water pH is between 4.3 to 4.9 (Corn and Vertucci 1992).

In a study on the impact of two-stroke emissions on fish, Balk et al. (1994) determined that hydrocarbons disrupt normal biological functions (e.g. DNA adduct levels, enzyme activity), including cellular and sub-cellular processes, and physiological functions (e.g. carbohydrate metabolism, immune system).[56] Serious disruption of fish reproduction and fry survival also seems likely.[57] (See also, Tjarnlund et al. 1995, 1996). Baker and Christensen (1991), for example, found that embryo and fry of rainbow trout have increased mortality at about pH 5.5. In the eastern U.S., where precipitation is more acid than in the West, and where some surface waters are chronically rather than just episodically acidified, fish populations have been severely depressed or eliminated in acidified lakes potentially because of adverse impacts of acidification

[55]While tiger salamanders have been determined to be particularly sensitive to increased acidity, the impact can effect the entire ecosystem. In Ontario, the artificial acidification of a lane from Ph 6.7 to Ph 5.0 resulted in an increase in biomass and change in species composition of phytoplankton when pH dropped below 6.0 (Findlay and Kasian 1986).

[56]Additional evidence of such impacts comes from toxicologist James Oris and his colleagues at Miami University who conducted a study on the effects of hydrocarbon pollution from two-stroke marine engines, the exact same engine used by snowmobiles, on fish growth. The study, funded by the National Marine Manufacturers Association, found fish growth to be decreased by as much as 46% as a result of exposure to two-stroke water pollution. Although the study addressed concern about marine engines, snowmobiles are capable of creating similar levels of water pollution in streams, lakes and rivers due to frozen or trapped hydrocarbon pollution in snowpack and polycyclic aromatic hydrocarbon contamination described above.

[57]Juttner, et al. (1995) determined that the toxicity of water contaminated by a two-stroke engine was far higher than contamination caused by four-stroke engine or a catalyst equipped two-stroke engine. Two-stroke engines also emitted significantly more hydrocarbons and volatile organic compounds into the water than a four-stroke engine (Juttner, et al. 1995a). Experiments which replaced gasoline with 96 percent ethanol reduced the persistent toxicity but the toxicity of freshly contaminated water was still high. Modifying the lubricating oils used in the fuel blend, on the other hand, had little effect on toxicity.

on the food chain (Schindler et al., 1985). Adams (1975) also found that the influence of lead and hydrocarbon on stamina, measured by ability to swim against a current, was significantly less in trout exposed to snowmobile exhaust than in control fish; the exposed fish made fewer tries to swim against the current, and swam for shorter lengths of time before resting.[58]

Vegetation can also be adversely impacted by pollution. Pollution from vehicle exhaust contain a number of elements which are damaging to vegetation. While the amount of pollutants emitted by a two-stroke engine are greater than those emitted by a four-stroke engine, the elements in the emissions, except for the unburned fuel emitted by two-stroke engines, are similar and include: 1) carbon dioxide which may act as a fertilizer and cause changes in plant species composition (Bazzaz & Garbutt 1988, Hunt et al. 1991, Ferris and Taylor 1995); 2) sulphur dioxide which is taken up by vegetation and can cause changes in photosynthesis (Winner and Atkinson 1986, Iqbal 1988, Mooney et al. 1988); 3) oxides of nitrogen which may be harmful to vegetation or may act as a fertilizer, causing changes in plant species composition (Rogers et al. 1979, Falkengren-Grerup 1986, Iqbal 1990, Wellburn 1990); 4) organic gases such as ethylene, to which plants may be extremely sensitive (Gunderson and Taylor 1988, Taylor et al. 1988); and 5) heavy metals which may cause phytotoxic damage (Atkins et al. 1982). Ozone, which is formed by the photochemical reaction of released nitrogen and hydrocarbons, may also injure plants and affect plant species composition (Reich and Amundson 1985, Becker et al. 1989, Ashmore and Ainsworth 1995, Warwick and Taylor 1995).

As an example of the potential impacts of pollutants on vegetation, Angold (1997), in his study of the impact of roads on heathland vegetation in the United Kingdom, found that changes in plant species composition was mainly a result of chemical pollution from vehicle exhausts. More specifically, he noted an increased growth rate in *Calluna* (*Calluna vulgaris*) and *Mollina* plants (*Molinia caerulea*) near the roadway associated with higher concentrations of nitrogen and phosphorus in *Calluna* plants and of phosphorus in *Mollina* plants. The increased rate of growth in *Calluna* plants was likely due to an increased supply of nitrogen from exhaust gases while increased phosphorus from soil litter may have benefited *Mollina* plants. Conversely, a lichen species, *Cladonia portentosa*, was found to be shorter, thinner, and generally less luxurious in growth nearer the road. Lichens are known to collect atmospheric pollutants (Rao and LeBlanc 1967, Ruhling and Tyler 1970, Martinez et al. 1971, Ferguson et al. 1984, Boonpragob 1989) and the increase in ozone and acid rain, to which nitrogen and sulfur oxides are known to contribute, probably caused this decline.

More broadly, Shaver et al. (1988) reported that the effects of pollutants can be both biological and ecological, and both acute and chronic. Such effects on plants include foliar injury,

[58]It is not clear in Adams (1975) whether the lead or hydrocarbons, or both, reduced the stamina measured in laboratory fish. Lead contamination is not as great a concern currently because of the existence and use of unleaded fuels. Unleaded fuel, however, contains trace amounts of lead which may accumulate in the environment causing adverse environmental impacts.

reduced productivity, tree mortality, decreased growth, altered plant competition, modifications in species diversity, and increased susceptibility to diseases and pests. Alterations to the vegetative community are also likely to result in implications to Park herbivores and other ecosystem components. In addition, ingestion by herbivores of trace elements deposited on leaf surfaces may lead to other impacts to the individual organism and throughout the food chain.

Polycyclic Aromatic Hydrocarbons (PAHs):

PAHs are by-products of fuel combustion found in high concentrations in unregulated two-stroke emissions. They are particularly hazardous because they are both carcinogenic and mutagenic, and are extremely persistent in the environment. Studies by the Tahoe Regional Planning Agency (1997) have shown that PAHs can remain on the surface of the water, where fish and other species feed on phytoplankton and zooplankton. Heintz et al. (1998), in their nine year study on the Exxon Valdez spill in Alaska, documented stunted salmon growth and reproductive problems from PAHs and may have adverse effects on long-term species survival and reproduction. Of further concern, Oris (1998) and Giesy (1997) found that PAHs at extremely low levels (parts per trillion) are toxic to zooplankton, and inhibit not only zooplankton reproduction, but also the reproductive success and general growth of fish. Moreover, natural ultraviolet light can increase the toxicity of PAHs on water surfaces by as much as 50,000 times under field conditions (Giesy 1997).

The findings of these studies also correlate to studies on snowmobile emissions. In a study of snowpack contamination by snowmobiles, for example, Matthew R. Graham of the University of Nevada-Reno found elevated readings of four PAHs -- acenapthene, acenaphylene, napthalene and phenanthrene -- in snow samples under field conditions. Graham detected levels of napthalene, for instance, of up to 12,000 ppb. According to the Occupational Safety and Health Administration (OSHA), the short-term human exposure limit (STEL) for napthalene is 15,000 ppb. OSHA's Health Hazard Data indicates that "contact may cause skin or eye irritation ... inhalation may cause headache, nausea and perspiration ... [and] ingestion may cause cramps, nausea, vomiting and diarrhea" (OSHA 1996).

Such high concentrations are particularly alarming for fish larvae, zooplankton, and perhaps other marine organisms. During an industry study, however, Oris (1998) found that much lower PAH levels (5-70 parts per trillion compared to Graham's detections of 12,000 parts per billion) cause "a significant effect on fish growth ... photo-activated toxicity to fish and zooplankton as well as direct (no-UV) toxicity to zooplankton." Giesy (1997) determined that only 19 ppb of another PAH compound (anthracene), under relatively low ultraviolet intensity (2,500 uw/cm^2 of UV-A), would kill all exposed zooplankton in 30 minutes. Furthermore, Heintz et al. (1998) concluded that sublethal levels of water contamination (as low as 1.0 ppb) stunted pink salmon growth, may fail to protect fish embryos, and caused other chronic problems.

Permitting the virtually unregulated use of snowmobiles in the Parks fails to safeguard these areas from astonishing amounts of water and air pollution which threaten park features,

resources, including wildlife, and park users. Such impacts are inconsistent with provisions set forth in the Clean Water Act, the Clean Air Act amendments of 1990, and NPS regulations and policies.

8. The analysis of noise impacts in the Draft EIS is entirely deficient:

The analysis contained in the Draft EIS makes it clear that the preservation of natural quiet within the Parks is immensely important. The analysis of snowmobile impacts on natural quiet is not sufficient. Not only has the NPS failed to provide citations for some of its alleged facts, particularly a citation for a study by Bowlby and Associates which measured ambient sound levels in GTNP which forms the foundation for the noise analysis in the Draft EIS, but its overall analysis of the impacts of recreational activities in the Parks pales in quality and comprehensive to the analysis conducted in regard to the impacts to natural quiet to parks caused by aircraft overflights (See Report on Effects of Aircraft Overflights on the National Park System, 1995).

The ambient sound measurements recorded by Bowlby and Associates must be adequate and accurate for the noise impact analysis to be meaningful since the assessment of noise impacts associated with snowmobile use is based on the ambient sound levels. This report, however, could not be evaluated because it was not referenced in the literature cited section of the Draft EIS. Moreover, the NPS provided no explanation of the methodologies used by Bowlby and Associates, the location of their measurements, or the number of measurements taken. All of these factors are important in determining the legitimacy of the ambient sound assessment. If this assessment inaccurately measured ambient sound, even if the error was only 10 decibels, this could profoundly influence the results of the noise impact analysis. It has come to the attention of The Fund and BLF that these levels were indeed ten to fifteen decibels louder than actual ambient sound in the Parks, thereby invalidating the noise impact analysis.

Furthermore, the Draft EIS contains absolutely no analysis of the adverse impact of noise on wildlife. According to the Environmental Protection Agency, snowmobiles produce significant amounts of noise which acts as a physiological stressor producing changes similar to those brought about by exposure to extreme heat, cold, pain, etc. (EPA 1971). The EPA states that:

> Clearly, the animals that will be directly affected by noise are those capable of responding to sound energy and especially the animals that rely on auditory signals to find mates, stake out territories, recognize young, detect and locate prey and evade predators. Further, these functions could be critically affected even if the animals appear to be completely adapted to the noise (i.e., they show no behavioral response such as startle or avoidance). Ultimately it does not matter to the animal whether these vital processes are affected through signal-masking, hearing loss, or effects on the neuro-endocrine system. Even though only those animals capable of responding to sound could be directly affected by noise, competition for food and space in an ecological niche appropriate to an animal's needs, results in complex interrelationships among all the animals in an ecosystem. Consequently, even animals that are not responsive to or do not rely on sound signals for

> important functions could be indirectly affected when noise affects animals at some other point in the ecosystem. The "balance of nature" can be disrupted by disturbing this balance at even one point.

Furthermore, the EPA anticipates that the consequences of a loss of hearing ability could include a drastic change in the prey-predator situation. It states:

> The animal that depends on its ears to locate prey could starve if auditory acuity decreased, and the animal that depends on hearing to detect and avoid its predators could be killed. Reception of auditory mating signals could be diminished and affect reproduction. (Masking of these signals by noise in an area could also produce the same effect). Detection of cries of the young by the mother could be hindered, leading to increased rates of infant mortality or decreased survival rates.

Finally, the EPA raises concerns about the findings of changes in the reproductive organs and sexual function of animals exposed to noise. These impacts, according to the EPA, "should be viewed as possible serious threats to the animal's reproductive capacity.

There is no evidence that the Park Service has conducted any studies to determine what impact this level of noise is having on Park wildlife. Even if this regulation was always enforced, this does not mitigate all potential impacts. For example, in Yellowstone National Park snowmobile use is constant, not infrequent. Thus, even at 78 decibels, the continual drone of snowmobile engines may adversely impact the hearing mechanism, behavior, and survival of wildlife.[59]

In addition, even if these noise restrictions reduce adverse impacts to wildlife, it is not clear if these restrictions are consistent with Park Service regulations which prohibit snowmobile use if it affects the "scenic and aesthetic values," "disturb[s] wildlife" in National Parks, 36 C.F.R. at §2.18(c), or creates unreasonable noise impacting other Park users. Id. at §2.12(a)(1). Snowmobile noise research conducted at the Pictured Rocks National Lakeshore reveal the potential impacts of snowmobile noise on other Park users. Mestre Greve Associates 1992 as cited in DOI/VNP 1992). As reported by Voyageurs National Park, these findings reveal that:

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[59]Although Park Service regulations prohibit snowmobiles if they exceed 78 decibels at 50 feet, 36 C.F.R. §2.18(d)(1), it is not known how carefully or consistently this regulation is enforced. In addition, whether the existing Park Service noise regulations accurately portray the noise generated by snowmobiles is not certain. The 78 decibel requirement is applicable only for snowmobiles manufactured after July 1, 1975. Noise levels for snowmobiles manufactured before 1975 are higher. The regulations on snowmobile noise levels, however, appear to conflict with regulations pertaining to audio disturbances which prohibits the operation of a motor vehicle or motorized equipment in a manner which exceeds a noise level of 60 decibels at 50 feet. 36 C.F.R. §2.12(a)(1).

> Based on typical background noise conditions, noise from a single snowmobile at Voyageurs National Park could be detected at a distance of 600 feet on flat terrain and at 400 feet in rolling terrain; noise from five snowmobiles (probably the most common group size) under typical conditions could be detected at 1,000 feet in flat terrain and at 800 feet in rolling terrain. On an extremely calm day one snowmobile could be detected at 800 feet in flat terrain and at 600 feet in rolling terrain, and five snowmobiles at 1,700 feet in flat terrain and at 1,400 feet in rolling terrain.

Thus, even though Park Service regulations restrict snowmobiles to the designated roadway, the impact of snowmobiles extends much further than the road surface. The NPS must provide a far more substantive and comprehensive analysis of noise impacts on natural quiet and wildlife in order to comply with NEPA.

9. The NPS must not rely on survey findings to revise and justify its final winter use management strategy, final EIS, and Record of Decision:

The Fund and BLF are concerned about the use of certain survey data in the Draft EIS.[60] While numerous surveys have been conducted to assess visitor likes and dislikes in the Parks throughout the years, using winter user surveys to assess whether winter users will accept changes in winter use management practices, regardless of the justification for such changes, is inappropriate and is guaranteed to result in user preferences supporting a continuation of winter use activities regardless of their environmental impacts. This is not to say that all of the surveys have been inappropriate or useless because they do provide interesting information about the expenditures of winter users, the reasons they visit the Parks, and their interest in park wildlife and scenery, but asking any user group whether the activity that they participated in within the Parks should be altered or ended, is like asking Microsoft chairman Bill Gates if he supports Internet technology -- the answer is obvious and expected.

In this case, for example, the winter 1998-99 visitor survey conducted in the Parks contained several questions which referenced bison management and road grooming which have been used to assess the willingness of winter users, primarily if not entirely, motorized winter users, to accept changes in motorized oversnow vehicle access to the Parks in the winter. While the questions contained information about the impact of groomed routes on bison and the fate of bison who emigrate from YNP, predictably the majority of respondents supported no change in grooming practices to protect bison (52.1%) and preferred the current grooming practices over

[60]It should be noted that the NPS has not published the results of its most recent summer survey or of its national telephonic survey. That information should be distributed to interested groups for review and comment before the NPS makes a final decision on the future of winter use management in the Parks.

the proposal to plow the road from West Yellowstone to Old Faithful (55.5%).[61] These results were likely influenced by the media reports on the litigation surrounding winter use of the Parks and by the substantial controversy surrounding the proposal to close one or more routes in YNP to snowmobile access contained in the Temporary Road Closure Environmental Assessment. While the survey did not contain a question to assess the users' knowledge of the controversy surrounding winter use, it must be presumed that a portion of the users, perhaps a large majority, were familiar with the controversy either due to media reports or because of information which may have been provided to them by business interests in the gateway communities. As a result, not only is it possible that the answers provided by the respondents may have been influenced by groups representing a particular perspective on this issue, but those who chose to snowmobile in the Parks may have either not understood the environmental impacts of their activity or not cared about those impacts.

While the NPS is free to conduct any and all surveys that it desires to obtain information about visitor characteristics and preferences, it must not rely on the survey data in making a decision about the future management of winter use, particularly snowmobiles, snowcoaches, and road grooming in the Parks. This decision must be based on the need and obligation to protect Park features and resources from the adverse impacts associated with motorized oversnow vehicle access and must be consistent with NPS statutes, regulations, policies, and other legal guidance. The decision should not be based on winter visitor likes, dislikes, or preferences since those standards are not likely to be consistent with NPS legal mandates and with its responsibility to protect the Parks in perpetuity.

THE NATURAL REGULATION ALTERNATIVE:

The Draft EIS, as indicated previously, does not contain any alternatives which are either ecologically acceptable or consistent with NPS legal mandates. Independent alternatives offered by other interest groups, including snowmobile groups and environmental organizations, also fail to provide appropriate or legally sufficient alternatives for winter use management in the Parks. The Citizen's Solution, which is similar to Alternative G in that it would permit only snowcoach use of the Parks, would definitely address all of the air, water, and noise pollution issues inherent to snowmobile use. Because routes would still have to be groomed to facilitate snowcoach use of the Parks, this alternative does not remedy the substantial adverse impacts on wildlife associated with groomed routes. Indeed, if implemented, the Citizen's Solution could exacerbate adverse and unnatural impacts of groomed routes on wildlife by resulting in an increase in wildlife, including bison, use of groomed routes as recreational use of the routes is reduced. Limiting motorized oversnow vehicle access to the Parks to snowcoaches will substantially reduce the amount of vehicular traffic on groomed routes resulting in significant amounts of traffic-free times

[61]Remarkably, despite the recreational and personal interests of the survey respondents, 23.4 and 23 percent of the respondents supported closing YNP to motorized winter access in response to questions about road grooming and road plowing, respectively.

when wildlife may take advantage of the groomed routes as energy efficient travel routes. This impact does not justify continuing snowmobile use of the Parks, but rather supports a complete prohibition on motorized oversnow vehicle access.

Such a prohibition is at the heart of The Natural Regulation Alternative (Attachment 6) developed by The Fund for Animals in response to the alternatives offered in the Draft EIS. The Natural Regulation Alternative is the only winter use alternative offered to date which ensures the long-term protection of the natural features and resources in the Parks and which is consistent with NPS legal mandates.

The primary component of The Natural Regulation Alternative is a prohibition on motorized oversnow vehicle access to the Parks and a termination of route grooming practices which facilitate such use. The Natural Regulation Alternative does not prohibit non-motorized use of the Parks nor does it affect automobile use of the plowed road from Gardiner through Mammoth to Cooke City in YNP.[62] While such a prohibition will upset some user groups and will affect snowmobile and snowcoach visitor use and experience in the Parks in the winter, there is, as previously stated, no law which requires that such use be permitted. There are, however, many laws which prohibit motorized oversnow vehicle use in national parks given the substantial adverse environmental impacts associated with such use.

The benefits of a prohibition on motorized oversnow vehicle access to the Parks are substantial and should be obvious. In addition to eliminating snowmobile emissions and noise, a ban on these activities and trail grooming will substantially increase the protection of park wildlife, restore natural regulation as the principal management factor for park wildlife, allow natural processes to flourish to the benefit of the ecology of the Parks, and it would significantly improve the experience for non-motorized users who come to the Parks to enjoy and appreciate nature and serenity as minimally influenced by humans as possible.[63] In addition, such a ban would set a precedent for similar bans in other national parks and would enable the NPS to correct unfortunate mistakes that were made 30 years ago which have resulted in damage to the Parks and their feature and resources and which have been allowed to continue in violation of NPS legal

[62]Though The Natural Regulation Alternative does not explicitly address non-motorized uses or automobile access to the Parks, The Fund and BLF believe that these uses must be controlled and regulated as necessary to prevent adverse and unacceptable impacts on park wildlife and ecology. The Fund and BLF also believe that the plowed route between Mammoth and Cooke City should ultimately be closed when transit between the two locations is no longer necessary in order to increase the protection and decrease artificial influences on wildlife in the Lamar Valley.

[63]If motorized oversnow vehicle access is prohibited in the Parks, this also eliminates the need for additional or enhanced infrastructure (i.e., increase in gasoline storage capacity, warming huts, purchase of snowmobiles/snowcoaches/grooming equipment) to accommodate winter users saving money, labor, and time.

mandates for too long. The drawbacks of such a prohibition are relatively few, while the benefits, including a recommitment to the original purpose of the NPS to preserve nature as it exists, are substantial and well worth the cost of making such a courageous decision.[64]

The Natural Regulation Alternative also calls for a restriction on road plowing. This restriction is also intended to restore naturalness to the Park to the maximum extent possible. It is recognized that some road plowing (i.e., Gardiner to Mammoth, Mammoth to Cooke City, Highway 26/89 within GTNP, and plowing around NPS buildings and residences) is required to meet NPS and public transport needs. Road plowing which is unnecessary or which becomes unnecessary as a result of a ban on motorized oversnow vehicle access should be eliminated. This will not only save money and labor, but it will also benefit natural process and wildlife in the Parks.

Finally, The Natural Regulation Alternatives offers an innovative strategy to permit public access to the Parks in the winter if, and only if, such access is deemed desirable and necessary. This access would be accommodated through the analysis, development, construction, and use of an elevated monorail system. It must be emphasized that an elevated monorail system is not required by The Natural Regulation Alternative but is offered as a means of permitting public access to the Parks in a more environmentally friendly manner via a mass transit alternative if such access is determined to be desirable, necessary, and appropriate. As stated throughout this comment letter, the NPS has no legal duty or responsibility to permit public access to the Parks in the winter. Thus, the monorail option is not required but rather it provides a unique means of transporting people into the Parks without causing the adverse environmental impacts associated with current types of visitor access.

The short and long term benefits of an elevated monorail system easily outweighs the costs. Not only would such a system provide a more environmentally friendly means of providing opportunity for public access to the Parks in the winter but it would also be beneficial to reducing the adverse environmental impacts of motorized access during other seasons. Among other things, the summer traffic congestion, snowmobile noise and pollution impacts, and the adverse impacts associated with wildlife use of groomed routes could all be eliminated through the construction of such a system. While there would be some visual impacts associated with an elevated system, such impacts would not be any more intrusive or invasive than the visual impacts inherent in the existing modes of motorized access to the Parks. Information about alternative monorail design technologies including a bi-directional system operating on a single track and a suspended system obtained through research on the Internet and from contact with companies developing alternative transportation technologies is included in this comment as Attachment 7.

[64]Another benefit of a prohibition on motorized oversnow vehicle use after 30 years of such use is the study of how wildlife populations, including bison, respond to removal of an artificial element (i.e., groomed routes) and motorized oversnow recreation in their winter environment. Given the existing knowledge of wildlife, particularly ungulate use of winter range in the Parks, baseline data are available for comparison purposes.

Prior to construction of an elevated monorail system, such a proposal must be subject to environmental impact analysis so that the public and decision-makers are well aware of the impacts, benefits, and consequences of such a system and to provide for public involvement in the decision-making process. If approved, The Fund and BLF envision a system which provides visitors with nearly all of the same opportunities to use and experience the Parks as are presently available. While the system would presumably be constructed in sections, ultimately the system could provide public access to all of the features of the Parks which are currently accessible by automobile, including hotels, cabins, and campsites. Hikers, including backcountry hikers, snowshoers, and cross-country skiers would be able to access most if not all of the current hiking trails.

Far from being a non-sensical option, the potential for the development of an elevated monorail system is technologically possible and must be considered by the NPS. While different in design than other innovative visitor use strategies being implemented in other national parks, the concept of providing public access to the Parks utilizing a mass transit strategy is identical to the bus and light-rail systems being implemented in other parks. Unfortunately those types of systems would not be effective in the Parks because of the unique conditions and management issues associated with winter use activities.

Overall, The Natural Regulation Alternative, with or without the development of an elevated monorail system, has merit and warrants significant and serious consideration by the NPS not just because it virtually eliminates the majority of the adverse environmental impacts associated with winter recreation, particularly snowmobiling, snowcoach use, and route grooming, but because it is the only option available to the NPS given its legal mandates.

CONCLUSION:

In August 1999, NPS Director Robert Stanton announced a rededication and recommitment to natural resource preservation and restoration throughout the national park system. This new program is dedicated to achieving a comprehensive inventory of natural resources within the national park system and to protect and preserve these resources for future generations. This program reflects a continuation of a reinvention of the NPS mandate promoted by the Leopold Report in 1963 and, more recently, by Sellars (1997). As Director Stanton stated in his speech at the centennial anniversary of Mount Ranier National Park, this renewed commitment to natural resource protection reflects the policies of Aldo Leopold who said "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."

Snowmobiling and road grooming in these Parks are wrong. These activities along with snowcoach use because of its dependency on groomed routes do not belong in any national park including YNP, GTNP, and JDRMP because of the significant adverse environmental impacts associated with these activities. The winter use EIS process was intended to be an opportunity for the NPS to comprehensively evaluate the environmental impacts of winter recreation on park

wildlife, ecology, air and water quality, natural quiet, and non-motorized users. This opportunity was inexplicably not seized by the NPS, and instead it elected, as it did in 1990, to produce a seriously deficient analysis which does not begin to properly address the environmental impacts of winter recreation, namely motorized oversnow vehicle access and which, therefore, is not in compliance with NEPA.

In addition to the lack of sufficient analysis of the impacts of snowmobiling, snowcoach use, and route grooming on wildlife, including bison, air and water quality, natural quiet, park ecology, and non-motorized users, the Draft EIS was fundamentally flawed because of the baseless and inexplicable presumption by the NPS that motorized oversnow vehicle access to the Park is somehow required. This presumption not only substantially compromised the integrity and usefulness of the Draft EIS, but it also prevented the NPS from seriously considering the only winter use management option which is consistent with NPS legal mandates which is to prohibit snowmobiles, snowcoaches, and road grooming in the Parks to facilitate such use. There is not a single NPS statute, regulation, policy, guidance document, or other directive which requires the NPS to provide opportunities for public access to the Parks in the winter. There are, however, a number of mandates which, given the adverse environmental impacts of motorized oversnow vehicle access and road grooming, compel the NPS to prohibit these activities.

For thirty years the NPS has stood by as the number and impact of winter recreationists, particularly snowmobile users, have escalated to a level which has resulted in the impairment and destruction of the tangible and intangible natural features of the Parks. Instead of upholding its Congressional mandate to preserve "nature as it exists," the NPS has ignored its own preservation mandates in favor of facilitating and supporting public use to the detriment of Park features, resources, values and to future generations who have yet to visit and enjoy the Parks. Whether the NPS policies toward snowmobiles and road grooming in the Parks is based on political or economic pressures, there is no justification for continuing to permit a minority user group to degrade and destroy the Parks.

As we enter a new millenium, the NPS has and must exercise this opportunity to right the wrongs of the past, to recommit itself to the management of the Parks as national parks instead of national playgrounds, and to rediscover its mandate to preserve and protect nature. These goals are only achievable if the NPS acts to ban snowmobiling, snowcoach use, and route grooming in the Parks and throughout the national park system. A failure to take such action is not consistent with NPS legal mandates and will be subject to litigation.

Thank you for the opportunity to submit these comments.

Sincerely,

D.J. Schubert
Wildlife Biologist

Attachments (by mail)

cc: (by mail without attachments)
Mr. Bruce Babbitt, Secretary of the Interior
Mr. Don Barry, Assistant Secretary for Fish, Wildlife, and Parks

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SCHUBERT & ASSOCIATES
Page 1. Re: Presumption that motorized winter access must continue. "The primary purpose of an environmental impact statement is to serve as an action-forcing devise to insure that the policies and goals defined in the Act [NEPA] are infused into the ongoing programs and actions of the Federal Government (§1502.1)." "The range of alternatives discussed in an [EIS] shall encompass those to be considered by the ultimate agency decision maker (§1502.2 (e))." The purpose and need for action described in the DEIS is sufficiently broad to act as an action-forcing tool. It is within the discretion of the decision maker to set the scope of analysis. Considering that motorized use in the Parks is an existing use, not a proposed use, it is logical to frame the purpose and need in terms that would include that use and facilitate an incremental investigation of the impacts of that use. To do otherwise, and to accept The Fund for Animal's (Fund) assertion, would result in a narrow scope of analysis and one viable alternative relative to motorized use. The settlement agreement that resulted in a need to develop this EIS requires a comprehensive evaluation of winter recreation use – the presumption that only nonmotorized use should be considered in light of policy, law, regulation and existing use, is not appropriate.
Page 2. Re: Dual or conflicting mandate. NPS asserts that there is a dual mandate which, in application, often presents management conflicts. Where management that serves the enjoyment of the people steps over a line in respect to resource preservation, the action to be taken is clear. It is that line, or threshold, or "impairment standard"(terminology coined by commenter) that is not often clear. The impacts in question are not on their face indisputable, and it is the function of an EIS to focus the issues by addressing those impacts as well as possible. The purpose and need for action was developed with this intent.
Page 2. Re: No snowmobile, no snowcoach, no trail grooming alternative. See first response, above. It is within the discretion of the decision maker to set the range of alternatives to be considered. How can the decision maker assess the impacts of an action without considering an alternative that includes it? If there is doubt about the level or type of use that might be acceptable, relative to impacts and mandated tolerances, then how can a determination be made without an appropriate range of alternatives? If NPS understands correctly from this comment that the Fund would not find the DEIS "permanently damaged" if there had only been a no-motorized use alternative, then NPS disagrees because of its discretionary authority in setting the scope of analysis. If the Fund relies on NEPA for its opinion that a no-motorized use alternative is required, NPS also disagrees. NEPA requires a "no action" alternative (§1502.14(d)). In this case, since motorized use exists, and was sanctioned in the past under existing rules, policies and plans, "no action" is correctly interpreted as the existing management situation. CEQ directly supports this position. Its opinion is that in instances where ongoing programs are being evaluated, "no action" is "no change" from current management direct or level of management intensity. In these instances, CEQ states: "To construct an alternative that is based on no management at all would be a useless academic exercise (Question 3 of CEQ 40 Most-Asked Questions)."
Page 2. Re: Preferred alternative proposes to prohibit motorized oversnow vehicle access. CEQ Regulations do not stipulate the rationale for selecting a preferred alternative in an EIS. It stipulates that in a final EIS, a preferred alternative must be identified. The statement of preference for one or more alternatives in a DEIS is discretionary, depending upon whether the agency has a preference at that point (§1502.14(e)). The identification of a preferred alternative in a DEIS should be regarded by the public as extremely tenuous. An EIS serves as a means of assessing impacts of proposed agency actions "rather than justifying decisions already made" (§1502.2(g)). The FEIS preferred alternative may be viewed more as a "precursor" decision, which will only become final in a Record of Decision that expresses the rationale for the choice. It is clear that the expression of a preferred alternative, by itself, can in no way invalidate the entire EIS analysis. The decision maker can select any of the proffered alternatives in a Final EIS through consideration of a variety of factors, including but not limited to environmental impacts. The selected alternative does not have to be the most environmentally preferable alternative, which must also be revealed in the decision document.

SCHUBERT & ASSOCIATES
Page 3. Re: The contention that the focus on economic impacts in the EIS is both unnecessary and misplaced, and that because of this focus the DEIS does not meet legal standards under NEPA. NPS disagrees. The commenter is undoubtedly aware that the consideration of social and economic impacts is routinely done in any environmental analysis. There are several major reasons for this. First, the scoping process as conducted under §1501.7 inevitably raises the social and economic effects of a proposed action. In many instances, these are regarded as significant issues. Second, the impacts must be considered in the context of society as a whole, the affected region, the affected interests, and the locality (§1508.27(a)). Third, the intensity of impacts on the quality of the human environment must be gauged (§1508.27(b)), where "human environment" is to be viewed comprehensively (§1508.14). Effects (direct, indirect and cumulative) are defined as including both economic and social impacts (§1508.8).
Page 4. Re: Snowmobiling and trail grooming cause significant adverse impacts. As stated in the comment, these impacts are disclosed in the EIS. The commenter cannot reasonably state on the one hand that the analysis is deficient and on the other hand, sufficient. The question is what are the impacts, and at what point do they result in an adverse impact on park values. It is the purpose of the EIS to speak to the magnitude, intensity and duration of the impacts, and it is left basically to the decision maker to determine what constitutes impairment given the context of the situation. Contrary to the assertion of the commenter, the level at which impacts are considered adverse is in dispute until resolved through an FEIS and Record of Decision.
Page 4. Re: Snowcoach use and trail grooming. It is the purpose of the EIS to speak to the magnitude, intensity and duration of the impacts associated with snowcoaches. It is left to the decision maker to determine what constitutes an adverse impact given the context of the situation. Contrary to the assertion of the commenter, impacts on the 3 park units are in dispute until resolved through an FEIS and Record of Decision. It is unreasonable to expect NPS to produce an EIS, which conveys the necessity to evaluate alternatives, and then to state that there is only one alternative because the impacts of all others are on their face prohibitive. This rationale is not effective in proving the DEIS is deficient, and it offers no constructive advice for producing a Final EIS.
Page 5. Re: Human use is secondary to preserving nature. The content of this comment on NPS mandates may also be found in the DEIS, page 2. Issues the commenter lists to show that NPS is not following its mandate are the same issues given in the DEIS purpose and need for action. The intent of the purpose and need for action, and the EIS is to improve the situation that the commenter decries.
Page 6. Re: Winter use mandate. The enabling legislation for Grand Teton National Park recognizes the right of access across Federal lands within the exterior boundaries of the park to state, national forest and private lands. It also recognizes U.S Highway 89 and authorizes the construction of an alternate route within the park to "facilitate public use and enjoyment of the [park]." The act is silent about the use of these or other travel-ways within the park by autos, trucks, buses, bicycles or other forms of transport – summer or winter. By the commenter's logic, there would be at least two highways through GTNP, but no traffic should be allowed on them. The commenter is correct in his statement that winter use is not explicitly or implicitly mandated by Yellowstone National Park's enabling legislation. However, neither does the act mandate implicitly or explicitly that winter access be disallowed. The act does state that the park is set apart as a pleasuring ground for the benefit and enjoyment of the people. The act also allows for the construction of paths and roads and buildings to accommodate visitors, with the overriding criteria that the resources therein be preserved and retained in their natural condition. The fact that buildings and roads may be constructed implies that a certain level of impact is acceptable to allow for access by the public. It is the purpose of this NEPA process to examine just this issue and to provide a meaningful analysis on which to base a sound decision. The acceptable level of impact on park values for all winter uses relates directly to the decision to be made based on the analysis presented in the FEIS.
Page 7. Re: Public use. NPS does not disagree with this conclusion regarding its authority to prohibit uses that cause impairment of natural resources and the enjoyment of those resources by future generations.

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Page 7. Re: Impairment standard. The action referred to in this comment is one that has long been implemented, supported by past policies, rules, and plans. The "no action" alternative is "no change from current management." Granting for the moment the commenter's assertion that said action was not legal at the beginning, NPS cannot just turn back the clock and start over. It must start at the present, assess the true impacts on these parks and proceed accordingly. It should be noted that the attachments to these comments purporting to do not conclusively demonstrate that the resources of the three park units have exceeded an "impairment standard." There are a great number of inferences drawn from general studies, or studies that were undertaken elsewhere. Results are extrapolated to the 3 park units, where conditions or circumstances are not demonstrated in the literature to be applicable. Where some studies of impacts, notably those associated with Mary Meagher, apply directly to park resources (e.g., bison in Yellowstone), the site-specific impacts are presented as rationale to prohibit use throughout the park. With few exceptions such as Meagher's conclusions, there is very little in the literature to provide a solid basis for determining at what point a potential impact becomes an adverse effect on park resources. This is contrary to the commenter's apparent assumption that "impairment standards" are self-evident and agreeable to all. NPS maintains that the standard of impairment can be a function of the criteria used by a decision maker in the record of decision. The latter is a part of the decision to be made.
Page 9. Re: Footnote reference to the CDST and other snowmobile use in GTNP: NPS agrees that it is appropriate to provide more discussion of the CDST in the final EIS.
Page 10. Re: Snowmobile use prohibited if in conflict with the park's values. This comment restates material from the purpose and need for action.
Page 10. Re: Legal basis for grooming winter trails. A true legal basis for drawing conclusions about what is and isn't allowed in the parks begins with scrutiny of the enabling legislation. In this case, reference is made to regulations which are subject to change within the strictures of legislative guidance. The enabling legislation is silent about grooming winter trails, as it is about a great many other facets of modern management. However, to conclude from the absence of regulations (on the practice of grooming) that grooming is unauthorized…. is highly erroneous. There are a great many standard practices and management measures that are not explicitly allowed in the regulations, and it is unreasonable to expect that this should be so. Aside from the question of legal authority for grooming winter routes, NPS has clearly felt for many years that it is within its management authority. The DEIS discloses the environmental impact of this activity.
Page 12. Re: Snowmobiling and trail grooming impact on animal populations. The commenter faults NPS for "conceding" impacts of winter grooming operations on wildlife in the DEIS while failing to take action to remedy the impacts. Since we are engaged in a NEPA analysis, the remedy for any impacts that are disclosed can only come with a decision. Since the decision will not be made until a Record of Decision is published, the criticism is premature. Commenter is getting the cart before the horse. If the criticism is based on NPS' identification of a preferred alternative in the DEIS, then we reiterate the response to comment, "Page 2. Re: Preferred alternative…"
Page 13. As stated in the comment, the impacts on air and water are disclosed in the DEIS. The actions that NPS must take in regard to the impacts goes to the decision to be made.
Page 13. Re: The NPS required to be aggressive in safeguarding air quality. Inventories and monitoring data relating to the condition of air quality and air quality related values are presented in the affected environment portion of the DEIS. The evaluation of pollution impacts by alternative is presented in the environmental consequences section of the DEIS. This analysis will be enhanced in the FEIS using results from air quality modeling.
Page 14. Re: Snowmobiles create substantial amounts of noise. The effects of winter use, in particular sound from motorized vehicles, are disclosed in the DEIS. This analysis will be enhanced in the FEIS using additional monitoring data and results from sound modeling.

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Page 15. There has not yet been a determination that snowmobiling and trail grooming are antithetical to preservation mandates. The action referred to in this comment is one that has long been implemented, supported by past policies, rules, and plans (Please see the earlier response to this letter in regard to page 2 "Preferred alternative.") The "no action" alternative is "no change from current management." Granting for the moment the commenter's assertion that said action was not legal at the beginning, NPS cannot just turn back the clock and start over. It must start at the present, assess the true impacts on these parks and proceed accordingly. Impacts that need to be considered includes economic effects. Please see earlier response to this letter in regard to page 3 "The contention…," above. The decision maker must weigh all impacts, and be guided in the end by her or his criteria that would protect the parks for enjoyment by future generations.
Pages 17-18. Re: Executive Order 11644, as amended. The NPS interpretation of Executive Order 11644 is set forth in the NPS policies the commenter cites. Recently, NPS proposed revisions to its management policies and solicited public comment on the revisions. 65 Fed. Reg. 2984. The Service's interpretation of the Executive Order may change following the NPS analysis of public comment on the revised policies. If that occurs before the final EIS or Record of Decision are ready for publication, NPS will include a notice of the change in those documents as appropriate.
Page 18. Re: Groomed routes to facilitate oversnow vehicle use. The commenter has constructed an argument whereby all choices involving any level of motorized use are gone, on the basis of a determination which has yet to be made. Adverse impacts may be associated with both motorized and nonmotorized uses, as disclosed in the EIS. Whether or not an adverse impact is tantamount to *impairment or derogation* of park values is also a function of the magnitude, intensity, duration and context of the impact. This determination of significance, for most resources and park values, is made in the final decision considering impacts disclosed in a final EIS, for a full range of choices. The commenter cannot have it both ways – a sufficient legal process under NEPA and a range of one alternative that is not pre-decisional. Assuming the illegality of an action initiated years ago by the perceived impacts of today is incorrect logic. NPS disagrees and feels that the assumption is wrong, therefore the conclusion drawn from it is wrong. NPS does feel that conditions have changed, and has taken steps for the 3 park units, first in 1990 (Winter Use Plan/EA), then starting in 1994 with a Multi-Agency Assessment, and presently in this EIS to address those changed conditions.
Page 18. Re: Involvement of cooperating agencies. The intent of granting cooperating agency status was in the spirit of cooperation and coordination consistent with NEPA, FACA and APA. The content of the document has been affected, but NPS disagrees that the analysis has been. The document incorporates material from the cooperating agencies, which is reported as a matter of full disclosure even though the results disagree with NPS analysis. Letters from the cooperators and the signed agreements between NPS and cooperators were included in the DEIS, Volume II. These items relate to content. As to inappropriate influence, one need only review media reports, comment letters or other correspondence from the cooperators to obtain their assessment of how they were involved.
Page 20. Re: Involvement of cooperating agencies in forming alternatives. Please see previous comment, immediately above. Cooperating agencies did have a participatory role in alternative development. However, they were not exclusively involved. The process used in the cooperating agency alternatives workshop began with exercises in developing problem statements from the public scoping effort.
Pages 20-21. Re: 2. The analysis of economic impacts. Please see the response to comment, "Page 3. The contention…," above. There is no emphasis from NPS on economic impacts. It would appear that this emphasis might be conveyed by the cooperating agencies, but the document and the process are merely fulfilling NEPA requirements. Also, NPS is not responsible for the economic viability of the surrounding areas, but what NPS might propose to do is certainly an issue which must be addressed in the EIS. For reasons given in earlier in this response, NPS disagrees with the contention that effects analysis for economics is subservient to analysis of ecological impacts. If the commenter truly means that economic impacts are subservient to ecological impacts, such as they are disclosed and understood through the EIS analysis, NPS feels this kind of determination is left to the decision maker.

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Pages 21-22. Re: Cost assessment Appendix F in Volume II of the DEIS describes construction and operation costs by alternative at a level regarded as sufficient for a programmatic EIS and plan (§1508.18(b)(2) and (3)). NPS will review and update this cost analysis for the FEIS, but the commenter has not provided any specific criticisms that can be addressed at this time. NPS will consider providing some additional discussion on environmental costs in the FEIS.
Page 23. Re: Alternative formulation. Please see response to comment, "Page 1" and "Page 2. Re: No snowmobile…" at the beginning of this letter response.
Page 23. Re: The major issues. The major issues are articulated in the DEIS on pages 13-15.
Page 23. Re: Alternative formulation. Please see response to comment, "Page 1" and "Page 2. Re: No snowmobile…" at the beginning of this letter response. CEQ regulations do not stipulate how alternatives are to be formulated. The regulations at §1501.7(a)(2) require the agency to consider public comment from scoping and determine the significant issues – or the issues to be analyzed in depth in the EIS. The regulations at §1502.14 require the agency to develop alternatives that sharply define the issues and provide a clear basis for choice among options. NPS developed significant issues from a broad scoping effort, and the DEIS alternatives respond to these issues in varying ways that allow a comparison of options and their effects or opportunity costs. The formulation of alternatives meets the requirements of the regulations.
Page 23. Re: Consistency with federal law and NPS regulations and policies. Laws, regulations and policies do not, by themselves, drive an action. An identified gap between existing conditions and desired conditions form the basis for the purpose and need for action. The underlying purpose (§1502.13), or goal to be achieved as stated at the scoping stage is to provide a full range of quality winter experiences offered in appropriate settings and having no significant adverse impacts on park values. This purpose is represented by the desired condition shown on page 3 of the DEIS. The underlying need (§1502.13) is defined by the existing conditions expressed on page 4. Despite the complexities introduced by multiple goals and multiple issues, all alternatives represent possible actions that meet the underlying purpose and need. As stated in the DEIS, the desired conditions in this case reflect relevant laws, regulations and policies. A decision maker may set the scope of analysis and the decision to be made within the constraints of those dictates. However, NEPA does not require this. An environmental analysis may evaluate a proposed change in policy, or a decision based on effective analysis may indicate the need for a change in policy.
Page 23. Re: Identification of the decision. The decision to be made will be presented in the purpose and need section of the final EIS.
Page 24. Re: Development of desired conditions. NPS developed the desired conditions, as it is this agency's responsibility to do. The DEIS clearly states that the desired conditions proceed from NPS mandates including legislation, regulations, executive orders, and governing policies. That motorized winter use has been ongoing in these parks since at least 1963, there is some indication that parks' leadership at the time found adequate direction in NPS mandates to allow the use. For reasons also described in earlier responses, it is reasonable to include a goal of motorized access as part of the purpose.
Page 25. Re: Plowing in alternative B. It is the commenter's opinion that plowed road access from West Yellowstone to Old Faithful would drastically and adversely affect wildlife. The analysis in the EIS does not bear out this contention, at least in the sense that the impacts would constitute an impairment or derogation of park values – which goes to the decision to be made. Alternative B, in this regard, is constituted to provide access for a number of visitors, via mass transit, equal to that facilitated by present snowmobile use. The alternative would drastically reduce the number of vehicle miles traveled on this route during the winter, even though the number of visitors could potentially increase.
Page 25. Re: The purpose of the EIS. It is the nature of the decision that is in question. It has been NPS' intent from the beginning of the process to prepare a programmatic plan (§1508.18(b)(2) and (3)). This would be the purpose of preparing a "comprehensive EIS." There should have been no illusions that a plan of this magnitude would be based upon detailed, site-specific data in order to make every decision possible relating to winter use. This programmatic approach is acceptable under the law, in the way that NEPA is the vehicle for producing NPS General Management Plans and USFS Forest Plans, and amendments thereto. Such documents do, in fact, make decisions and allocations at a general level and defer many site-specific types of decisions to a later date. In this context, it is also acceptable to spell out processes that would be followed, such as adaptive management, as alternative features. That this is

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done in two alternatives cannot be construed as a violation of NEPA. It will be up to the decision maker to weigh the available data, the possible impacts of such alternatives in the short term, and decide if park resources and values are sufficiently protected.
Page 26. Re: Conducting scientific studies. See preceding response. Technically, this issue is debatable and it is why NPS is performing NEPA at this time.
Page 27. Re: Grooming. The impacts of grooming are evaluated and disclosed in the DEIS. It is unclear what the commenter is referring to in the statement that substantial impacts of grooming have not in some cases been disclosed. There may be a difference of opinion on the nature of impacts associated with this action.
Page 27. Re: Failure to evaluate a nonmotorized alternative. The adequacy and range of alternatives, regarding the inclusion of motorized use, has been addressed in numerous foregoing responses.
Page 27. Re: Failure to evaluate a nonmotorized alternative. NEPA does not require the detailed consideration of a no snowmobiling, no grooming, or no motorized use alternative. See especially response, "Page 2. Re: No snowmobiles…"
Page 28-29. Re: Alternatives presented by commenter. Five possible "alternatives" are presented by the commenter on these pages. Except for suggested total closures to motorized use or grooming for an entire park, or for timing restrictions that appear to be administratively unviable, many of the alternative suggestions are incorporated within the DEIS alternatives. As such, they are available as choices for the decision maker. Also, the suggested alternatives could at the appropriate time be the result of adaptive management procedures, further study, or recreation capacity determination. NPS takes this opportunity to further address the complexity of alternative formulation in this effort. Many suggestions for alternatives or alternative features were made in the thousands of comments received. A great deal of criticism was leveled at the current range of alternatives because people did not like the way features were "mixed." At the same time, many people focused on features of alternatives that they liked, and features to which they were opposed. It is clear that for such complex issues there could be an infinite number of possible alternatives. CEQ states that in such instances, the agency need only consider a reasonable number of examples that cover the full spectrum of possible alternatives that meet the purpose and need (Question 1b, CEQ 40 Most-Asked Questions). What constitutes a reasonable range depends on the nature of the proposal and the facts in each case, where the proposal is at the discretion of the agency. The final selected alternative that is to be documented in a record of decision may mix features from the range of alternatives evaluated in the final EIS. Such mixing can occur as long as the mixed features are consistent with one another, and as long as the features and their effects would not fall outside the range of alternatives disclosed in the EIS (§1505.1(e)). A finding as to that circumstance would be entirely appropriate in the record of decision, along with the rationale, should the selected alternative not precisely correspond with one of the "mixes" evaluated in detail. This material needs to be explained in a new FEIS section on the decision to be made.
Page 29. Re: 4. The Draft EIS fails to disclose or discuss environmental impacts associated with trail grooming. The DEIS discloses and discusses the environmental impacts of trail grooming for each alternative. Since this activity has relevance primarily for wildlife, its impacts are discussed in the wildlife consequences section for each alternative.
Page 30. Re: Increase in snowmobiles and their impacts. This statement of effects relates more to use by snowmobiles than to effects of groomed surfaces. Effects due to snowmobile use are also disclosed in the DEIS by alternative. The alteration of snowmelt patterns by trail grooming and use and their alleged effect on road surfaces is not a significant issue requiring study in this EIS.
Page 30. Re: Reduction in the rate of snowmelt due to grooming. The impact of groomed surfaces and how they may facilitate the transport of toxins into the aquatic environment is more appropriately addressed by directly speaking to the presence and sources of the toxins. The DEIS discusses this under effects on water resources for each alternative. Additional information has become available (Ingersoll, *Effects of Snowmobile Use on Snowpack Chemistry in Yellowstone National Park, 1998*) since publication of the DEIS, and will be incorporated into the final document.

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Page 31. Re: Use of groomed routes by wildlife beneficial. If the issue is the effect of groomed surfaces on the energy balance of individual animals, as is the intent of the DEIS discussion, then groomed surfaces by themselves allow animals to save energy. This is why they use the surfaces, and it is apparently to their benefit. The DEIS also makes the point that recreation use of groomed surfaces contributes to stress and energy expenditures by animals. The larger issue – given the balance of energy savings vs. energy loss – is if and to what extent these circumstances constitute an adverse impact on park resources. The total picture – groomed routes, type and amount of use, stressful periods for wildlife, availability of forage – needs to be considered in the final decision. The goal of natural regulation applies to whole populations, not individuals, and must factor in the presence of people.
Re: All comments on pages 31-41. The commenter relies heavily upon the work of Dr. Meagher to support his opinion that groomed roads have had a major and devastating effect on bison, and that, consequently, natural regulation does not operate on the YNP herd. While work by Dr. Meagher was considered and used in the preparation of the DEIS, as stated on page 166 wildlife biologists disagree on the extent to which bison use roads, and as to the effects of use on population dynamics and movements. Therefore the results of other studies were cited as well. Providing the reader with both opinions fulfills the disclosure requirement in CEQ regulations (§1502.9(a)). A discussion as to the effects of groomed roads on ungulates in general is found on pages 183, (alternative A) and subsequent evaluations of each alternative compare the effects of groomed roads to those incurred under alternative A. Additionally, the conclusion section contained in the discussion of the impacts of each alternative addresses the effects of groomed surfaces on ungulates. The DEIS discloses that groomed surfaces may positively affect the energy expenditures incurred by bison and other ungulates. Furthermore, the cumulative effects of winter recreation and severe weather on wildlife are discussed on pages 166-67 (also see above response). The commenter provides a lengthy literature review about the effects of recreation, in particular groomed roads, on bison and other wildlife species. The major points repeatedly expounded upon are found within the DEIS. Please see the following response as it relates to CEQ requirements for adequate disclosure. NPS will include a few additional citations in the FEIS: Aune (1981) on the ability of bison to habituate to snowmobiles and Moen et al. (1982) on the physiological responses associated with disturbance. Although wolves have been documented to use snowmobile trails, this relationship has not been evident for the wolves tracked in YNP (Smith, pers. comm. 2000). The latter fact will be included in the FEIS and Biological Assessment.
Pages 42-46. The CEQ regulations do not require exhaustive and voluminous discussion, especially when the discussion can be characterized as background and adding needless detail (§1500.4 (f)). The amount of detail to be included in an EIS should be that level which is relevant to the decision to be made, and preparing analytic as opposed to encyclopedic documents (§1500.4 (b)). The regulations recommend page limits on documents, which the draft EIS already exceeds. Finally, the regulation at §1502.21 (Incorporation by reference) requires agencies to incorporate material by reference to cut down on the bulk without impeding agency review. Brevity and incorporation by reference of large amounts of literature in the DEIS, and in the FEIS, does not constitute inadequate disclosure. Work by Dr. Meagher and others was considered and used in the preparation of the EIS. The lengthy discussion of wildlife and impacts on pages 42-46 of the letter, presented as a listing of flaws in the DEIS, is drawn from literature summarized and cited in the EIS.
Pages 46-53. Re: T&E species. First of all, the preparation of a biological assessment (BA) is a requirement of ESA; whether or not formal consultation is required is up to the USFWS upon review of the BA. The commenter implies in Footnote 40 that NPS is negligent in its duty to prepare a BA. A draft BA was prepared and submitted to the USFWS. There is no requirement under NEPA for public review of a BA. Otherwise, 1) Grizzly bears—The FEIS will be amended to include a more thorough discussion of impacts to grizzly bears associated with winter recreation. The NPS does not dispute that carrion is important to grizzly bears in the spring, but it does not agree that multiple pages of literature review (as provided by the commenter) are necessary to support this fact. Furthermore, it is not clear, as the commenter asserts, that indirect impacts associated with the alleged "altered distribution and movement patterns of large ungulates" result in lowered availability and accessibility of carrion. Although some studies have indicated that grizzlies use carrion within 1.5 km of a road or development less than its availability, there has not been shown a causal link between roads, where animals die, and grizzly bear survival as influenced by lack of carrion. Any disturbance to scavenging bears as a result of roads and developments are alleviated by a YNP policy that closes to the public important spring foraging habitats for grizzlies beginning March 15 (before the majority of bears emerge from their dens) and keeps much of that area closed until Memorial Day weekend. This discussion will be expanded upon in the FEIS and BA. Lastly, the potential indirect effects of air pollution on grizzlies are not supported by data and are consequently highly speculative. Gray wolves—The FEIS will be amended to include a more thorough discussion of impacts to

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gray wolves associated with winter recreation. Although wolf use of packed snow routes has been documented to occur, this relationship has not been established in YNP. The commenter's contention that groomed routes allow wolves a competitive advantage over ungulates, which are also attracted to the routes, misses the point: wolf habitat is ungulate habitat. Ungulates, regardless of whether groomed routes occur or not, travel to areas of low snow in the winter, i.e., winter range and wolves follow. Lynx—The FEIS will be amended to include a more thorough discussion of impacts to lynx associated with winter recreation, in particular the effects of groomed roads on interspecific competition. Wolverine—The FEIS will be amended to include a more thorough discussion of impacts to wolverines associated with winter recreation. Snowmobile impacts to denning wolverine, however, are not expected to occur because snowmobile routes are not located in wolverine denning habitats, which are generally in high elevation, remote areas.
Page 53, including material through page 56. Re: Analysis of public health. There is a greater amount of final study information available to the NPS for inclusion in the FEIS than was available prior to the publication of the draft. Public health sections will be updated in accordance with this data. Please see response, "Pages 42-46," above.
Page 53, including material on pages 56-59. Re: Analysis of water and aquatic resources. There is a greater amount of final study information available to the NPS for inclusion in the FEIS than was available prior to the publication of the draft. Water and aquatic resources sections will be updated in accordance with this data. Please see response, "Pages 42-46," above.
Page 53, including material through page 56. Re: Analysis of air resources. There is a greater amount of final study information available to the NPS for inclusion in the FEIS than was available prior to the publication of the draft. Air resources sections will be updated in accordance with this data. Please see response, "Pages 42-46," above.
Page 59. Re: Effects on vegetation. The commenter extrapolates from data involving actively photosynthesizing vegetation. Otherwise, statements about impacts on vegetation are too broad to be conclusive about effects on this resource during the winter in the three park units. The question appears to be more about fuel and oil residues deposited in snowpacks, and how that may indirectly affect vegetation during the spring growth season.
Page 60. Re: Polycyclic Aromatic Hydrocarbons. That PAH and other toxic elements are included in emissions from 2-stroke engines is disclosed in the DEIS, page 163 et al. The information in the DEIS will be reviewed and enhanced as appropriate for the final document.
Page 61. Re: Analysis of noise impacts in the DEIS is deficient. Analysis of sound in the DEIS is sufficient in its determinations, by alternative, that winter use activities have adverse impacts on the natural soundscape. Information from Bowlby and Associates was used in the DEIS analysis, but was inadvertently omitted from the bibliography. This will be remedied in the FEIS. Also, additional data has been developed for the sound analysis and will be incorporated into the final document.
Page 61-62. Re: Impacts of non-natural sound on wildlife. Because quantifying the effects of non-natural sound on animals in the wild (as opposed to a controlled laboratory setting) is extremely difficult, NPS believes that analyzing the effects of machine noise on ambient sounds levels is a legitimate substitute (see following response). NPS also believes that the effects of noise on wildlife are inherently included in the overall effects of snowmobiles on wildlife in terms of disturbance. Nonetheless, a review of the impacts of noise on wildlife will be included in the FEIS.
Page 62. Re: Consistency of noise restrictions with NPS regulations. If it were determined beyond speculation that machine noise as it occurs in the 3 park units adversely affects wildlife to a point that it represents derogation of park values, then the restriction would apply. The same is true of possible impacts on aesthetics or experiences of other visitors, although these are disclosed as adverse impacts in the DEIS, and may be more supportable. This issue goes to the purpose and need for action, and to the decision to be made, addressed in earlier response to comments in this letter.

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Page 63. Re: 9. NPS must not rely on survey findings to revise and justify its final strategy and Record of Decision. NPS will continue to use the best information available. As this survey information is reported or cited in the DEIS, the limitations of the survey are made evident. Additional survey information is now available for the FEIS, and those data will similarly be accompanied by assumptions and survey limitations. The data is used to report impacts, primarily those involving visitor experience and social and economic environments. The final strategy, or decision is based on selection criteria used by the decision maker, which are disclosed in the record of decision through discussion of "preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions" (§1505.2(b)). Please see the response, "Page 2. Re: Preferred alternative…"
Page 64. Re: Influence on results of Winter Use Survey. See previous response. NPS is aware of this survey factor, and the conclusions drawn from the survey are placed in this context.
Page 64. Re: Purpose. Commenter's statement of how the decision must or must not be arrived at. This goes to the purpose and need for action and the decision to be made. Please see the response, "Page 63. Re: 9," above.
Page 65. Re: New alternative. Commenters put forth new alternative not evaluated in detail in the DEIS. This alternative and the contention that it would be the only a viable alternative consistent with NPS legal mandates are based on premises that NPS does not accept. The completion of the EIS and the final decision are critical to any such determination. "The primary purpose of an environmental impact statement is to serve as an action-forcing devise to insure that the policies and goals defined in the Act [NEPA] are infused into the ongoing programs and actions of the Federal Government (§1502.1)." "The range of alternatives discussed in an [EIS] shall encompass those to be considered by the ultimate agency decision maker (§1502.2 (e))." The purpose and need for action described in the DEIS is sufficiently broad to act as an action-forcing tool. It is within the discretion of the decision maker to set the scope of analysis. Considering that motorized use in the parks is an existing use, not a proposed use, it is logical to frame the purpose and need in terms that would include that use and facilitate an incremental investigation of the impacts of that use. To do otherwise, and to accept the Fund's assertion, would result in a narrow scope of analysis and one viable alternative relative to motorized use. The settlement agreement that resulted in a need to develop this EIS requires a comprehensive evaluation of winter recreation use – the presumption that only nonmotorized use should be considered in light of policy, law, regulation and existing use, is not appropriate. The insistence upon natural regulation comes from a misplaced focus on individual animals rather than populations, and it ignores the bigger picture that people, roads and facilities are located in National Parks and will remain so. Hence, as indicated in the EIS, NPS will not analyze in detail an alternative that removes all oversnow motorized use from the three park units.